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COORDINATED BY CIRAD, GRET AND IRAM

Managing Food Price Volatility for Food Security and Development

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List of Acronyms

NGO	Non Gouvernemental Organization
FAO	Food and Agriculture Organization
FSC	Food Security Committee
WTO	World Trade Organization
GREMA	Groupe de Recherche et d'Echange sur la régulation des marchés agricoles
LDC	Least Developed Countries
PAA	Agricultural Food Acquisition Program
ADMARC	Agricultural Development Marketing Corporation
OECD	Organisation for Economic Co-operation and Development
ECOWAS	Economic Community Of West African States
ECOWAP	Regional Agricultural Policy for West Africa
AoA	Agreement on Agriculture
SGS	AoA's Safeguard Clause
IPCC's	Intergovernmental Panel on Climate Change
WWII	World War II
GATT	General Agreement on Tariffs and Trade
IMF	International Monetary found
OTC	Over the counter
MIS	Market Information System
CFF	Compensatory Fnancing Facility
ESF	Exogenous shocks Facility
FIFF	Food Import Financing Facility
IGCA	International Grain Cleaning Arrangement
ICA	International Commodity Agreement
DSB	Dispute Settlement Body
ASEAN	The Association of Southeast Asian Nations
FO	Farmer Organization
WFP	World Food Program
MFIs	Microfinance Institute
SAP	Structural Adjustment Program
RTAs	Regional Trade Agreement
CET	Common External Tariff
SDT	Special Different Treatment
SPE	Single Payment Entitlement
ZNFU	Zambia National Farmers Union
CAP	Common Agricultural Policy

Introduction

The fight against the price volatility of agricultural and food products and, more generally, public intervention in agricultural markets are longstanding subjects of debate among academics and the government authorities of various countries equally. Trade and market regulation are the crux of this debate between those in favor of liberalization in the strict sense and the supporters of intervention or of more or less moderate regulation. Other actors' organizations (such as farmers' and consumers' unions, local and multinational companies, and NGOs in different fields) are involved. This is because the level and instability of agricultural and food prices have considerable consequences for all citizens of the world and in particular for those near the poverty line. Indeed, for poor consumers, a sharp rise in prices means entering a situation of hunger and/or indebtedness, and for poor farmers, a drop in prices begins or speeds up a process of impoverishment, loss of land if the farming household was forced to mortgage its last assets, and ultimately eviction. Every year, more than twenty million people find themselves pushed out of farming in this way and join already saturated urban areas and labor markets. It is not surprising, in this context, that, for years, this issue has stood as a major obstacle in international trade negotiations.

In the spring of 2008, the sharp rise in prices, which hit the urban poor hardest, sparked riots in many cities in developing countries close to national and international authorities and under the eyes of television cameras. According to the FAO, one hundred million more people were added to the hunger statistics in 2008. The specter of hunger reared its head, and the debate on markets was revived. The shunned idea of regulation and public intervention re-emerged in forums and at the very center of international negotiations. Accountability was demanded of the international organizations in charge of agriculture and food; and, to sustainably raise the issue of food security at the highest level, the G8 and United Nations began to elaborate a "Global Partnership for Food Security." This led to the opening up of the FAO's Food Security Committee (FSC), the mobilization of global expertise by creating a panel of high-level experts, and additional financial efforts devoted to the development of food crops. For its part, the G20 has expressed alarm at the deregulation of markets, first the financial markets, then the commodities markets and finally the agricultural markets. France, which assumed the presidency of the G20 in November 2010, included the issue of regulation in these three—closely correlated—fields on the agenda for the next summit.

The Groupe de Recherche et d'Échanges sur la Régulation des Marchés Agricoles (GREMA, agricultural market regulation research and exchange group) was created by NGO activists and scientists somewhat in the minority at the end of 2004 to elaborate the positions to take and arguments to defend in the process of preparing for the WTO Ministerial Conference in Hong Kong (December 2005). Five years later, against the backdrop of a serious blockage of WTO negotiations, GREMA has found itself involved in a debate on

market regulation that is now more open and has been introduced within the G20 by some member countries. GREMA's study, delivered to the French authorities prior to the G20 presidency, offers analyses and proposals elaborated based both on theoretical reflections and the observation of experiments with regulation attempted in approximately fourteen countries. This report is an extension of other studies that were previously conducted in a similar vein, notably the study produced by the ECART group (Galtier et al. 2009). However, let us point out that, well before the 2008 crisis, while the major international order-givers and most governments, relying on pro-free trade convictions, affirmed the dangers of public intervention in the life of markets and denounced the upsets introduced in their natural tendency towards optimal equilibrium, the same could not be said of other actors concerned by the organization of agricultural trade, starting with agricultural farmers' organizations and international solidarity associations who saw the damages in the field caused by the policies inspired by an uncompromisingly liberal doctrine. Nevertheless, the liberal discourse of governments coincided often poorly with the policies implemented and negotiating positions. If any proof is needed, it suffices to review the stages in the trade negotiations over the past decade and a half, for instance the WTO Ministerial Conferences, and examine the tones successively adopted in each of them: 1994 in Marrakesh, end of the Uruguay Round, creation of the WTO and announcement of the launch of a new negotiation cycle; 1999 in Seattle, failed launch of this new cycle, informal alliance between developing countries and non-governmental actors within a movement described as "anti-globalization" before it adopted the term "alter-globalization"; 2001 in Doha, one month after the events of September 11, obligatory statement of good intentions but without results; 2003 in Cancun, new blockage; 2005 in Hong Kong, timid proposal of a negotiation framework and methodology; then no forward movement until July 2008 in Geneva where, during a special meeting, India came out of the woodwork and, with its alliances (notably with Brazil), blocked the negotiations by demanding the right to invoke a safeguard clause in the case of market surges—a demand that was refused. Since then nothing, dead calm on the negotiating table, and attention has shifted to how the food crisis was handled, to the need to reformat the international mechanisms in charge of food security, and to the search for practical solutions to enable markets to operate properly. This report aims to find answers on this last point.

More precisely, this book addresses the following questions:

- In which cases is markets regulation desirable? Is it necessary to allow a real improvement in food security in world poorest countries?
- Is it feasible? Which conditions have to be fulfilled? Which modalities will be best adapted according to specific contexts? Which kind of institution and capacity building should be promoted?

These topics have already been analyzed in a large number of academic studies. Several experiences have been undertaken over the last fifty years. Yet, the question is still highly controversial. Here, we proceeded in two steps (i) Combining theoretical and empirical approaches to summarize the main arguments for and against public intervention, (ii) a two days workshop followed by a one day seminar to allow intensive exchanges between

experts, scientists and policy makers with contrasted positions and to present the main finding to a larger audience.

To reflect this approach, this book contained four parts. Part A discusses the main arguments justifying or denying direct public intervention on markets, the factors of successes and the main reasons for failures. It combines academic and empirical approaches.

Part B is made of the minutes of the seminar held the 1st December 2010 in Paris, a contribution of Peter Timmer(emeritus Professor, Harvard University) on the main conclusion to be drawn from the debates, and a detailed picture of actors' behavior along the commodity chain in Burkina-Faso and its implications for market regulation realized by inter-réseaux. It also supplies web links to the presentations of Philip Abott (Professor at Purdue University (USA), Andrew Dorward (Professor at The School of Oriental and African Studies, (University of London), F. Gérard (CIRAD) Maximo Torrero (IFPRI), Kako Nubukpo (Professor at the University of Togo).

Part C contains the abstracts (and the web links to the main texts)of a set of seven notes, each of them presenting a subject related to public intervention on agricultural markets,. Similarly, Part D is made of the summaries of the fourteen case studies which have been analyzed in this project, as well as the web links to the corresponding full text.

Part A

Synthesis

Public Intervention on Markets: **From Theory to Reality**

Chapter 1 – Status of the Debate and Background Issues

While the issue of market regulation is not new—one can recall the common agricultural policy during the heyday of the levy/refund mechanism or during that of supply control through the setting of dairy quotas for each farm; one can also recall the establishment of international product agreements and the Common Fund—the debate around the notion of regulation is now situated in a new context that can be described rapidly as follows:

- No one—or almost no one—now denies that the market has a central role in organizing trade on all geographic scales, trade in which billions of farmers and consumers as well as millions of micro- or macro-businesses participate. It is no longer a matter of planning flows or setting prices. For everyone, markets must be able to “live their lives” and continue to be the breath of the economy. This does not prevent one from noting that market deficiencies and failures do exist, that markets can be manipulated, and that the most powerful and best organized actors can subjugate markets. Furthermore, everyone is aware that the economic field in which markets operate and “merchandise” is sold covers only some of humanity’s concerns and cannot be assimilated with the general interest. It is not the market’s job to be concerned with enforcing universal rights, the sovereignty of peoples and nations, the preservation of nature and the common heritage, etc. The expansionism of the market, which operates by turning “things” into “goods” and public goods into private goods, must be contained within the bounds that it is up to lawmakers to define and the public authorities to enforce. There can be, and often is, a contradiction between the dynamic of market expansion and respect for the general interest. There are limits to what is acceptable and what is not that must not be crossed and, in the field of agriculture and food, what is unacceptable is mass hunger, the degradation of the common heritage, and the massive exclusion of hundreds of millions of farmers towards economic and social nothingness. When things get out of hand on the small scale, they can be overcome with aid or social policy, but when there are massive, lasting and cumulative upsets and imbalances, one must envisage tackling the analysis and treatment of the causes of these unwanted changes.

- The globalization of agricultural markets and their financialization have increased in recent years. The integration of markets into a large global market has developed in line with natural market dynamics but also thanks to proactive policies to open geographic borders as well as the struggle against all obstacles likely to hinder trade. This integration was supposed to lessen the volatility of agricultural markets through offset mechanisms between deficit and excedent zones or periods. This assumption has not been confirmed in recent years. This market integration bluntly raises the question of the contagion of market ills, and the measures to take to protect

against them between two or more national markets and between one or more national markets and the global market. In recent years, market integration has been accompanied by strong financialization of agricultural trade. This trade was not of particular interest for international finance, which found more profitable and less risky prospects elsewhere. The crisis in financial markets, agricultural price volatility and the prospects of raising price levels generated strong speculation movements that themselves increase volatility. The instability of financial markets and the strong variations in exchange rates have become major elements in the instability of agricultural markets, and this does not simplify ways to address this instability. P. Chalmin has compared the attempts to stabilize agricultural markets to trying to stabilize the surface of water in a sink in a sailboat navigating a stormy sea! Agricultural markets are increasingly correlated to other markets, for example the energy market. Unable to hope for general stabilization, one must therefore evaluate to what extent it is possible to protect oneself from the instabilities of neighboring markets.

- Everyone, or nearly everyone, believes that the exaggerated volatility of prices and their excessive unpredictability have harmful, even dramatic, consequences for farmers and consumers. For farmers and producers near the poverty line, sudden price hikes or drops can have catastrophic consequences, as we indicated above. But for all farmers, this unpredictability greatly hinders farm innovation and investment, that is to say farm modernization, particularly when these investments require one to commit most of the household's assets or borrow heavily. When a farmer is at the edge of poverty, taking risks is neither responsible nor even possible. It is difficult to correctly measure the scope of the silent dramas occurring in the countryside when poor farmers are faced with the necessity of overcoming this rule of prudence. Because, in most countries around the world, countless peasants are in crisis. For instance, think of the "suicide belt," the districts around Andhra Pradesh and Karnataka in India. There, over the last ten years, several thousand peasants committed suicide, victims of the fall in cotton and groundnut prices and prisoners of the "debt trap" because they had to mortgage their last plots of land. The "center for social development" in Hyderabad mentions seventy suicides every week, 55% of which involving men between the ages of 31 and 45! The dramatic consequences of price volatility are now universally known. More and more experts admit that curing only its consequences without addressing its causes is insufficient. Of course, social and economic urgency – for instance, when many farms are all on the edge of bankruptcy – may call for social policies and safety networks. But beyond such situations, these policies that only mask problems are questionable. On the one hand, they alter market signals, sending producers erroneous information regarding scarcities. On the other, they are costly, with enormous budgetary outlays for the countries that can afford them, but out of reach for the less affluent countries that, indeed, would need them the most.

As a consequence, more and more experts believe that the very causes of the price volatility must be tackled, and, to this end, one must first determine what they are. In chapter 2, the corresponding theory has been revisited. A distinction has been made between two sorts of causes: exogenous and endogenous. Then, in chapter 3, actual policies put in operation in fourteen countries have been evaluated in the light of the

above analysis in order to see to what extent the latter correspond to reality. Finally, chapter 4 describes the actions that have (or could have) been envisaged at the international level. The conclusion is that to improve consumer safety and enable the modernization of agriculture, it is therefore appropriate to envisage placing limits on price volatility—that is to say, negotiate the price ceilings and floors that will determine the bands or ranges that are acceptable for both producers and consumers and sufficiently wide to allow markets to live their lives as markets. To be accepted by all the parties present, these bands/ranges must be negotiated with all the actors concerned. These are sensitive negotiations because these actors usually have conflicting interests, all the more as wisdom would dictate that the bands not be too different from the price levels practiced in international markets if one wants to avoid excessive external pressure and the emergence of a black market economy. Once the ceilings and floors have been set, an authority will still need to have the power and resources to keep prices within acceptable ranges. And, to do so, this authority must have a range of tools that allow it to intervene on both the supply of products—that is to say primarily on national production, imports and de-stocking—and on demand, that is to say first on national consumption, export, stocks and the diversification of agricultural products toward non-food uses. A panoply of measures must, in this way, make it possible to improve the predictability of price changes so as to limit disruptive and self-fulfilling anticipations, a major source of volatility. We shall analyze this panoply of instruments, regulations and measures throughout this study, keeping in mind the fact that cures for the causes of price volatility will not cure other ills. For example they will be inactive in fighting inequalities. The reduction of inequalities requires other cures, for example agrarian reform if the crucial question is land access, or policies supporting poor producers incomes or the most deprived consumers, or fiscal policy allowing wealth redistribution.

- After the food crisis in 2008, the need for market regulation and the necessity of fighting price instability have been accepted by a growing percentage of experts and decision-makers, but doubts remain as to the public authorities' real power to intervene on the factors of market instability, as do fears about government leaders' ability to resist—in certain socio-political situations—the temptation to use this power and these regulatory instruments to serve private, even personal, interests rather than use them to defend the general interest. We shall see that the rigor with which regulatory actions are implemented, the objective and predictable conditions that trigger these actions, and the democratic control of leaders and their actions are decisive, and that for each of these questions, measures must be taken to ensure the credibility of market regulation policies. Nevertheless, these doubts and fears, while they inspire caution, must not cancel the need to fight market instability. Let us say, first, that all the actors concerned by agricultural markets—and even other actors that provide no value added and therefore in theory have no place in these markets—intervene in these markets and do so according to their own interests. This being the case, one can wonder why a public authority mandated to defend the general interest could not intervene to avoid the serious consequences for consumers when prices rise above the ceiling, or the serious consequences for producers when prices fall below the floor price. While we acknowledge this mandate for the political authorities, two questions that we have not

asked remain: that of the authorities' real power to intervene, and that of corruption in the use of regulatory instruments.

Taking into account regulatory bodies' real power and the existence of safeguards to avoid abuses of power is decisive for the design and choice of regulatory instruments. Indeed, at present, there are numerous limits to the affirmation of national sovereignty and, even more, to the emergence of a real international authority; and the safeguards that could emerge as opposition forces are deficient. This is the "policy space" issue being weakly debated in international negotiations.

- Limits to the affirmation of national sovereignty and the emergence of an international authority exist. First, there are the WTO agricultural trade agreements, which serve as the keystone of and baseline for all trade agreements, and which determine what is forbidden and permitted when it comes to trade and public agricultural policy. Then, there are the conditions, notably those that address market openness, imposed by international financial institutions during the negotiation of loans and the repayment of public debt, and during the distribution of international aid. Next, there are the quality of statistics and the ability to analyze very imperfect data and predict changes in the markets. Finally, there is the poverty of public instruments able to allow regulatory action: customs administrations and border control agencies, agencies in charge of verifying compliance with the rules by the various market actors, law enforcement, storage infrastructures, etc.

- The corruption of regulatory instruments exist as well. Market interventions to avoid market instability and keep prices within acceptable bounds create opportunities for corruption or insider trading, especially when intervention decisions—public purchase or sale decisions, allocation of import or export permits, cession of production quotas, etc.—are unpredictable.

Issues Addressed by the Study and Organization of the Study

Should state intervention be limited to creating a conducive environment for private activities through the provision of public goods such as infrastructures and political and economic stability, or are direct interventions of the state on markets sometimes desirable? In particular, is it necessary to allow a real improvement of food security in the world's poorest countries? Or are more market-friendly interventions, such as warrantage or insurance subsidies, possibly combined with ex-post compensation for poor consumers, better suited to the situation.

Is the direct intervention of the state on markets feasible? Or are the difficulties, costs and inefficiencies associated with public interventions combined with the positive impacts on stability expected from trade liberalization in a favorable market environment sufficient to give up direct public intervention? How can the adverse effects of direct interventions on markets be minimized? What conditions need to be met? What modalities will be most appropriate for specific contexts? What kind of institution building should be envisaged?

Several instruments exist. They were extensively analyzed in a study undertaken last year (Galtier *et al.*, 2009) which proposed a typology (Box 1). It is possible to distinguish between public and private instruments and between instruments aiming at minimizing price variability or its consequences. Theoretically, each source of price instability should be treated by a specific instrument. Most of the time, however, it is impossible to apply this recommendation because of the complexity of price formation and the relationships between markets. In reality, various sources of instability generated in several markets are inextricably combined, one reinforcing the other and generating cumulative disequilibriums that spread from one market to another.

In the current study, we will discuss the main controversies related to direct public intervention in markets, first concentrating on theoretical arguments (Section 2) and then comparing theory with reality by analyzing several national experiments used to try to determine the main factors of success and causes of failure (section 3). Finally, the question of what could be done at the international level will be addressed in Section 4.

Box 1 : Instruments for Handling Food Price Instability: A Typology

Galtier *et al.* (2009) proposed a framework to describe the different instruments available to handle food price instability. Based on followed objectives and forms of governance, four categories were identified. The objectives sought can be to stabilize prices or manage price risk; forms of governance can be market-based or public.

	Stabilize Prices	Manage Price Risks
Market-based	A-instruments	B-instruments
Public	C-instruments	D-instruments

The central tenet of A-instruments is that the arbitration of market actors causes prices to be homogenized over time, space and between products, which will lower their instability. They include the construction of storage infrastructures, the development of quality standards, and the creation of warehouse receipt systems or exchanges.

Also based on the market, B-instruments are intended to limit the effects of price instability on incomes by enabling economic actors to cover themselves against the risks linked to price variability (futures contracts) and harvests (insurance).

C-instruments aim to stabilize prices by controlling production (input subsidies), regulating imports and exports (variable taxes and subsidies, quotas, bans), and using public stocks.

D-instruments enable household incomes to be supported during periods of high prices (targeted social transfers).

The conclusion of the study is that the strategy based on a combination of A, B and D instruments has not stood the test of time. A-instruments are not enough to solve the chronic price instability problem, which remain unchanged. Private risk management instruments are used very rarely, and safety nets do not successfully prevent the deterioration of vulnerable households' nutritional status. The authors argue for the use of a combination of instruments to fight against agricultural price instability according to its sources.

Chapter 2 – Price Instability and Market Failures: A Case for State Intervention

F.Gérard, J.M. Boussard, E. Maitre d'Hotel

The necessity of agricultural market regulation is a long-standing controversy in economics. Over the last fifty years, development prescriptions have shifted from very interventionist, to liberalized market-led policies. None of these policies have been widely successful in promoting food security, and the existence of failures under both approaches is now widely recognized. This consensus will be the starting point for our analysis. A lot of academic studies have analyzed these topics and the experiments undertaken in the last fifty years. This section aims to point out main areas of consensus and main controversies, and try to document them using economic theory.

2.1 Is Direct Public Intervention on Prices Desirable?

The Key Role of Prices: Coordination of Decentralized Decisions

From a theoretical point of view, standard economic theory tells us that no intervention is needed if markets are functioning properly. In this case, private actors concerned with their own interests only are led to act in such a way that the economic system reaches an optimal situation. In particular, private trade and storage will transfer the necessary quantity of products through space and time; prices will be stable and predictable.

The basic market coordination mechanism is price. Market prices signal buyers' willingness to pay a set amount for a good or a service, and potential suppliers are then willing to incur the costs of supply this good or service if these costs are lower than the price. This is how market economies function, and history has proved the superiority of this system over state-led decisions. Markets then have the difficult task of generating prices able to efficiently drive actors' behavior for the satisfaction of consumers. Prices have the key role of coordinating individual decisions conveying the information necessary for efficient decisions. Any surplus or shortage can be eliminated with market clearing at equilibrium price. In economic jargon, the marginal utility of each consumer equates price, so that it would be impossible to increase the welfare of one consumer without depriving another from the same quantity of happiness. Even more, any intervention on prices at this stage is likely to introduce black markets, bribery, and other illegal behaviors, generating unnecessary rents.

The Negative Effect of Price Variation

For the above reasons, some agricultural economists consider that lowering price variation may actually be a cost. Yet, the large price variations that can be seen on actual markets have obvious costs too: when a price goes from 0 to 3 in the space of a few months, it is impossible to conclude that such a change reflects a corresponding change in the marginal cost of production. Now, any discrepancy between the price and the marginal cost means that either the consumer or the producer incurs a loss, while the other side benefits. However, elementary economic theorems show that the winners always benefit less than the losers lose. Thus, in this case, price volatility is not a blessing. Moreover, if actors cannot correctly forecast future prices because of price variability, the basic function of markets—i.e. determining prices equating supply and demand and conveying adequate information to actors so that they can make efficient decisions—is not fulfilled.

Another point to be considered is that the mean price level is not the only determinant in producers' decisions. The risk involved in price variations is also important for producers. When there are large price variations, credit will be more difficult to obtain, impeding modernization and capital accumulation. This is especially important for poor farmers in developing countries: they are poor because, due to a lack of capital, the productivity of their labor is low. If they could borrow, they could increase the quantity of capital in operation, and therefore increase productivity. But banks do not grant loans to poor people subject to large variations in the price of their outputs...

The above considerations, thus, cast a new light on the price variation issue. While small, progressive price changes are obviously desirable, large, sudden swings are detrimental, and do not guarantee an optimal state of the economic system, quite the contrary. Indeed, they stand as a major obstacle to the efficient use of existing resources, lowering production, and, in the long run, increasing the mean price level at the expense of the consumer, without any benefit for the producer. In such a situation, according to the most orthodox economic theory, it is the public authorities' duty to correct excessive and unnecessary price variations in order to let the economic system return to path to long-term equilibrium from which it should have never been diverted. This is the basic justification of the State intervention in agricultural markets.

However, while price intervention for stabilization purposes is justified, it has also to be efficient, that is, curing the evil at its root and avoiding unexpected side effects. To achieve such a target, a careful examination of the causes of price variations is necessary. Without such careful examination, one runs the risk of curing only the symptoms at considerable cost without having a deep and lasting effect. Let us now turn our attention on this issue, which is also the subject of controversy.

The Causes of Agricultural Price Instability

Agricultural markets exhibit very unstable prices. The reason for the high volatility of agricultural prices compared to the prices of manufactured products is a point of agreement among economists: little reaction in demand in response to price variations (called in economic jargon “low elasticity of demand”), high dependence on natural conditions, high transportation and storage costs in relation to the value of the product, and production lags. All these specific characteristics stand as obstacles to smooth market operation, and explain large fluctuations.

The low elasticity of demand means that even large changes in prices will not change the quantities demanded by very much. This is because food is a very basic need. Consumers need a certain amount of calories and proteins. They are willing to give up any other satisfaction to meet this need. At the same time, as soon as the required food objective is met, any other increase in food consumption is deemed futile, thus implying that no consumption increase is to be expected, even for free. For this reason, per capita food demand is relatively constant whatever the price. If price is really too high, a fraction of consumers dies, and some elasticity is added to the demand curve. However, everyone agrees that such a situation is not desirable.¹

Furthermore, agricultural markets try to match a fluctuating supply, which is fixed in the short term because of the long production lags associated with high storage and transportation costs, with a rigid demand. In these conditions, a small supply shock results in large price changes.

All economists agree that this is the basic reason for agricultural price volatility. They disagree strongly, however, on the consequences of this phenomenon and whether or not it justifies public intervention in markets. Because demand is generally seen as relatively stable,² the question becomes: what causes supply shocks?

Self-Regulation Mechanisms

In theory, private storage and trade activities should solve the problem, allowing the dilution of supply variations through space (market enlargement) and time (storage). But, as explained in Box 2, transfer costs from one market to another, through space or time, define a band that can be wide if transport and storage costs as well as risks are considerable. It explains why prices sometimes move independently from one market to

¹ Of course, the above argument should not be taken too literally. Some foods are “elastic,” for instance goose liver or champagne. An increase in the price of goose liver would certainly decrease the demand for this commodity by a significant amount. But in such a situation, the demand for goose liver would probably shift to other foods, leaving the total demand for calories unchanged. Indeed, because of substitution, it is possible to observe high values for the demand elasticity of a specific product taken in isolation, but this high elasticity does not imply much flexibility in the overall demand for food.

² Even so, the total demand for food and agricultural products does change, first because the number of consumers and their food habits change, and second, because there is a non-food demand for agricultural products. However, these evolutions are generally progressive and foreseeable.

the others, separated by space or time. Within the band, domestic price instability is affected neither by trade nor by storage, and domestic policies have no harmful impacts on commercial partners. Symmetrically, even stable international prices do not provide stable domestic prices within the band.

The most natural explanation for supply shocks is indeed the subject of a consensus among experts: shocks are a result of nature, which creates different conditions for plant growth. Some are “better,” others are “worse” than “normal.” For instance, a drought can decrease yields over large areas. An epizooty can kill a large fraction of cattle. Conversely, a small amount of rain at the right time can increase yields by a surprising amount.

It has been claimed that such events carry their own remedies themselves: when supply is low, prices are high, thus maintaining farmer incomes by offsetting the loss of quantity with the increase in price (and conversely in case of “large” production). This constitutes **natural insurance** against price instability and, in this case, public intervention in markets aiming at stabilizing prices will worsen producers’ situation by destabilizing income. This might be true in a narrow market, where all producers are subject to similar weather conditions. As soon as markets are widened to allow for natural shock dilution, this is no longer true since a given farmer can very well be subject to natural conditions entirely different from those that trigger the change in price. In addition, while such a mechanism might protect farmers’ incomes, it never works for net buyers, which is the status of numerous poor producers in developing countries, and leaves unresolved the situation of consumers, who may suffer from high prices. Thus, this argument should not be invoked to justify blind faith in markets’ capacity for self-regulation.

When shocks are the consequence of nature, it is usually possible to rely on the “law of large numbers” to mitigate their consequences. The law of large numbers says that **many independent small shocks cancel out each other**, in such a way that their sum is null. This is the theoretical basis for insurance. Because each contract is “small” in comparison to the total portfolio held by an insurance company, and because the damages on one contract are independent of those on another, the overall outlay of the company is fairly constant, thus allowing costs computations and the definition of contract prices. Of course, the independence of risks is a prerequisite for insurance: companies never contract risks likely to be tied to each other. For instance, drought is rarely insured, because droughts affect not only one farmer (leaving the others untouched), but all farmers in a region. In this case, the reimbursement of all simultaneous accidents would jeopardize the liquidity of the company, and must be avoided. However, even in this case, insurance can be envisaged if the risk of drought is spread over a very large area in such a way that the weather in one sub-area can be seen as independent from the weather in another sub-area.³

This reasoning is behind the doctrine of the WTO and other organizations that says that liberalization is the best way of stabilizing world agricultural commodity prices: **if supply**

³ We have to mention that experiments in developed countries have not been encouraging. When there are no subsidies, demand for insurance by farmers has been very low.

shocks occur because of weather and other fortuitous events, since such events are not spread over the entire world, and most of the time are independent from one region to another, then merging markets at world level should normally secure a fairly stable overall supply, hence a stable world price. On this point, all economists agree.

The same line of reasoning also applies over time. Droughts (and more generally, weather events or epizooties) are independent from one year to the next, thus allowing for a pooling of risks over a large number of years. Of course, any step in this direction involves financial considerations, since transactions through time implies lending and borrowing. But with a financial system as developed as it is nowadays, this should not be a problem. “Catbonds,” “futures markets” and similar instruments should provide all the necessary facilities for that.

The only difficulty in this case (and the main difference between risk sharing across time and risk sharing across geography) is that physical supply is roughly constant across geography, but not across time. Thus, while financial risk sharing can be efficient in protecting producers’ incomes, it does not resolve issue of consumers facing famine... But this problem can be solved with storage. And, in theory at least, private storage should do the job: to make money, the speculator holding an inventory should buy when prices are low (thus pushing up prices when they are “too low”) and sell when prices are high (thus pushing down prices when they are “too high”).

As explained in Box 2, price stabilization based on these self-regulations mechanisms will be hampered by transfer costs between markets. Because these costs are high for agricultural products, especially in poor countries due to poor infrastructures and high risks, domestic price instability will remain high even if international prices are stable. This emphasizes the need for direct public intervention (C-instrument), on national isolated markets. The facts that prices instability remains high despite market expansion and after more than 30 years of globalization, is therefore explained partly by these costs and partly by an only partial liberalization process as numerous states continue to intervene in agricultural markets.

However, following this line of reasoning, safety nets are currently the main recommendation to protect the poorest from huge variations, while others buy insurance. The social implications of such an option should not be underestimated. To some extent, it implies that a large segment of the population of the poorest countries will be marginalized, because of resource access, if they are not able to leave the agricultural sector. In the current international context, opportunities for development outside the agricultural sector are few and far between.

Box 2 : Price Transmission Between Markets

The law of one price stipulates that in a perfect world, without transport costs and officials barriers to trade (such as tariffs), identical goods will sell everywhere for the same price if they are expressed in the same currency as a direct result of the profitability of buying a product at a low price on one market to sell it at a higher price on a different market. In reality, transfer costs from one market to another are high for agricultural products. This includes transportation costs and all transaction costs—that is, all costs related to negotiations and contract searching costs, risk-induced costs, and the costs incurred by meeting the licensing or other requirements of rent-seeking government agencies or officials. Market liberalization policies aim at reducing this last kind of cost. But other types of costs remain. They constitute a protection, especially important for landlocked countries, but also for all cases where risk is high. They act exactly as a tariff, making prices in the country higher and then increasing supply and lowering demand, decreasing trade compared to a situation without transfer costs. Overvaluation of the exchange rate also acts in exactly the same way.

Transfer costs determine a price band within which trade is not profitable and domestic prices are not stabilized by the international market. For example if the price is 100 on the international market and transfer costs are 50%, it will not be profitable to import (export) before the price on the domestic market reaches 150 (66). Within the band, which can be wide especially when transport facilities are poor and risks high as is often the case in LDCs, domestic price instability is not affected by trade providing space for domestic policies to deal with this harmful phenomenon without destabilizing external markets.

Domestic markets are connected to the international market when the domestic price equals the upper or lower limit of the band. Then, international price fluctuations will be transmitted to the domestic markets, in proportion to the exchange rate, while the volume of exports or imports will affect the world supply and demand balanced by the international market. If the country has an important share of world trade, this variation may affect the world price. This is not the case for small countries.

It is by this price transmission mechanism that the market is enlarged by trade, with the price equating world supply and world demand and allowing for the dilution of small independent local accidents. The same mechanism is at work when import prices rise, increasing domestic prices when the country is importing or exporting, at the expense of domestic consumers. It is impossible to obtain prices stabilization through international trade without accepting to share the burden of adjustment and thus tolerate some import price volatility. But, as explained above, instability will be removed only if it is generated by shocks related to natural events and resulting in prices exceeding the band. One positive aspect of this phenomenon is that, within the band, a public stockpiling scheme may stabilize domestic prices (let us say between 80 and 120, to continue with the example above) without destabilizing external markets.

The same mechanism applies over time according to storage activities. Transfer costs from one period (which include storage costs but again also risk and other transaction costs) to the next determine a band where private activities aiming at transferring the product supply from one period to another is not profitable and where prices fluctuate independently.

Some instruments aim to minimize transfer costs between markets through space and time, thus minimizing the band where prices fluctuate independently (A-instruments). Decreasing storage and transportation costs will indeed improve the market functioning and decrease price instability. Lowering risk-related costs is, unfortunately, much more difficult.

Price transmission is not limited to vertical linkages. The fundamental role of exchange rates was mentioned above. The importance of the costs of transfer from one market to another indicates a first link with energy markets. Energy markets also determine input prices and therefore production costs. Moreover, the recent development of biofuels creates new strong links between energy and agricultural products. Agricultural product markets are also linked together through to major channels: (i) consumers' choices and arbitrations between products according to relative prices that create a strong link between product prices, with the substitution effect transmitting price variations from one product to another, and (ii) the competition for land and other scarce production factors necessary to agricultural production that generates contagion phenomena.

Self-Regulation Failures Related to Expectation Errors

Another explanation for price vagrancy exists, however. It is based on supply dynamics and the difficulties of forecasting in situations of large price fluctuations. Ezekiel (1938), followed by Boussard (1996) and many others shows how production lags combined with the low demand elasticity and the difficulty of future prices forecasts generate endogenous price instability and that this instability has no chance to be reduced by trade.

Because prices variations are due to either natural shocks, as explained above, or the issuing of a signal that more (or less) supply is necessary to satisfy consumers, it becomes very difficult for actors to decode the information provided by markets. Prices variations are sometimes signals, reflecting changes in fundamentals and requiring supply adjustments but sometimes they are the result of accidents requiring no changes in supply. This problem holds true for both farmers and traders. It occurs on domestic markets and on the international market. In this way, markets do not fulfill their role of providing the appropriate information to actors, leading to coordination failures.

When deciding what and how to produce in what quantity, the producer never knows what the price will be at harvest time. Actually, any economic calculations at planting time have to be made on the basis of "expected" (not "equilibrium") output prices. In case of a discrepancy between the expected price and the real price, the producer may either earn an unjustified reward or receive a dramatic punishment. Bad forecasts generate inefficient decisions; supply will be too high or too low to meet consumers' needs, generating huge prices variations and widespread drop in real incomes.

Another complication comes from the necessity of funding investments (long-term investments such as building a stable, and short-term investments such as buying seeds or fertilizers, with the latter applying in particular in the case of poor peasants, even when they do not trade on markets: in shortage situations, they sometime eat the grain normally reserved to make seed, thus pushing famine back to the following year). If incomes were low last year, money to fund investments this year will be lacking, thus decreasing supply.

In this case, the problem arises because of expectation errors: if, at a certain time, all producers expect a “high” price, they will probably all increase production, often going into debt to do so. It might happen that the overall increase in production goes beyond consumers’ capacity to buy. Prices then collapse. As a consequence, the next year, farmers see price as being “low,” which does not encourage them to invest again, especially as their incomes had dropped, they have to repay their previous loans, and they are short of money. As a result, production is low, prices soar, and so on... This mechanism is called a “cobweb” because the diagram used to illustrate it for on a basic supply and demand scheme actually resembles a cobweb.

The same mechanism affects storage decisions, hampering market operation: too often, speculators drive prices even higher in the case of shortages, and even lower in the case of gluts. This is because they are wrong: they expect prices to rise or fall even more (see Box 3). In these cases, fluctuations are generated by expectation errors due to imperfect information and the major influence of expectations on the commodity price formation process (Mandelbrot, 1973). As already emphasized, this happens on domestic markets as well as on international markets.

Box 3 : The Controversial Role of Speculation

International markets for agricultural products are often coupled with futures markets, which allow the exchange of the risk associated with price fluctuations with a premium through forward contracts. They offer a way to manage price instability. However, transaction costs (especially for small farmers in poor countries) are high and they are better suited to traders than to farmers. Moreover the duration of contracts is around one year, which is too short to allow investment planning. Speculators are key actors on the markets because they are willing to bear the risks other actors like to avoid. When the markets are running smoothly, speculation stabilizes prices, diluting shocks in space and time exactly in the same way that trade and storage do. Because speculation is at the heart of fervid discussions, it is interesting to refer first to its definition. Derived from the Latin word *specular* (to observe), to speculate is to buy or sell in the hope of deriving monetary gain. Useful arbitrations in space and time by merchants belong to this category. They stabilize the prices when markets are functioning well and expectations are accurate, and destabilized it when herd behavior, panics, crashes, and other destabilizing behaviors take place on the market. The heart of the question is still the same: expectations and their accuracy, the fact that they may completely change in a few seconds, and the key role they have in the price formation. The financiarization of the commodity, which is the fact that investors, in their search of uncorrelated assets, recently entered agricultural markets, may magnify the risk of destabilizing behaviors.

Many types of cobwebs have been described in economic literature. But all of them share the fact that they **are not curable by the same recipes** that work for shocks generated by natural events. For instance, while two isolated markets fluctuate in “anti-phase” (high prices in one market correspond to low prices in the other), merging them will just result in phase “synchronization.”

Insurance schemes are not feasible, first because prices are the same for everybody at the same time, thus precluding any geographical risk sharing, but also because there is an almost perfect autocorrelation between two adjacent periods, ruling out any sound financial risk sharing across time.

In presence of this category of shocks, **the market itself is at the origin of fluctuations**. If one wants to avoid these fluctuations, the only possibility is to intervene directly to regulate market operation. The idea is not at all to suppress the market, just to help it play its role of informing producers of consumers' wants and consumers of production difficulty. Various possibilities exist for that, and will be described below. Yet, a very general rule must be pointed out: it consists in creating the conditions so that a minimal supply can occur. If a minimal supply is "sure," then prices cannot soar up to a very high level. And because prices cannot be too high, they also cannot be too low because producers are never encouraged to overproduce. The practical enforcement of this rule depends upon circumstances, especially the scale of the production basins over which it is applied and the capacity of governments to manage imports and exports, as will be seen below. The important thing is that to avoid excessive price volatility, we need to be sure that a regular and sufficient quantity will be provided on markets.

Coordination Failures Justify Direct Public Intervention in Markets

In other words, while liberal recipes stand as the best solution to get rid of shocks from nature, there are other sources of fluctuations that are best cured by State intervention. Unfortunately, in practice, both sources of fluctuations are at work: harvest sizes are affected by the weather, and actors expectations are not always fulfilled. The difficulties involved in accurately assessing the causes of a given price variation is perfectly illustrated by the ex-post analysis of the 2006-2008 price surge (Box 4). As seen above, the problem is that the appropriate remedies are completely different in each case, but the sources of large fluctuations are inextricably intertwined. To cure the first kind of shocks (caused by nature), measures aiming at improving the market operation by providing a better environment for private storage and trade activities and lowering transfer costs through improved information and transparency on markets (A-instruments) are well suited. Insurance could resolve the problem for the remaining instabilities of this kind due to transfer costs (B-instruments). But, for the second kind of instability, generated by the market itself in an uncertain world, direct public intervention in markets is necessary. The importance of agriculture, both as the provider of basic food and as the main source of income for the large majority of the poor, makes ex-post instruments such as safety nets (D-instruments) impossible to use. Beyond issue of human dignity, the governments of poor countries do not have access to the necessary financial resources. It is also worth considering that if safety nets are necessary in cases of extreme events; their use will be far less costly if direct public interventions on markets minimize the probability of occurrence of such events. Moreover, these instruments have the same implementation difficulties as direct public intervention (rent-seeking and so on). This is what makes setting up a sound agricultural and food policy is so difficult.

The controversy turns around the relative importance of the two kinds of instability described above. For some, the instability related to the difficulty of self-regulation in agricultural markets is negligible and, because of the inter-relationships between markets, it is better not to intervene so as to not to transmit price instability to other markets. Compensation, outside the market, could be used, if necessary, for the poorest while others will take out insurance. Coordination failures do not take place. For others, despite the difficulties and costs associated with public interventions, building a conducive environment for private activities is necessary but unlikely to be enough, at least in the medium term. Public intervention is required.

Price Instability, Dynamics Involved, and the Poverty Trap

Food markets often exhibit very unstable prices. **Does this mean that they are unpredictable?** If not, the worst impacts are concentrated on poor consumers, who often spend more than half of their budget on food, which can be compensated for, avoiding at the same time social unrest and economic instability. Instruments that aim to compensate the poorest, such as safety nets (D-instruments), could then be used. **If so, they lead to inefficient behaviors by actors.** For producers, as explained above, risk discourages investments and even market participation for the poorest. It may explain why some economies seem stuck in a low equilibrium trap (Dorward *et al.*, 2004; Poulton *et al.*, 2006; Timmer, 2000). **Then, in certain circumstances, and at least at a specific stage of development, market-related public policies can be necessary to escape from vicious circle of low labor productivity leading to low incomes and low investments.**

Impacts are also considerable in developed economies as the business is too risky to allow efficient investment decisions. Periods of low prices, generating farm bankruptcies, especially among indebted farmers, are followed by periods of high prices due to scarcity. Even if the impacts on consumers are lower because consumers are richer and consuming highly processed goods in which raw material costs account for a small share of the final price, the general impacts on the economy are not negligible. Moreover this does not allow for progresses in terms of sustainable agricultural development.

The problem of economic policies is not only—and not even primarily—to allocate a fixed supply between consumers but to create conditions such as, in the long run, supply be large enough to smoothly match at least the basic needs of the population with practices not too detrimental to the environment and product safety. At the same time, this target must be hit with an efficient use of existing resources, without squandering them in over-supply. The question, then, is whether a completely free market and large price fluctuations can help reach this target.

In presence of large price variations, capital is often wasted. This is because when prices are high, producers tend to overinvest. When prices fall afterward, they cut production, and part of the investment is left unused (hence, squandered). Most of the time, when prices rise again, the unused share of capital is not usable anymore (or only usable at

high cost), so new capital must be invested again...Obviously, this is not an efficient process. It is therefore detrimental for the general welfare.

These are very strong cases for price regulation indeed, even assuming “risk neutrality.” But the detrimental effects of risks also have to be considered. When planning production on the basis of expected prices, a farmer (or the farmer’s banker) cannot ignore the fact that expectations might not be met: this puts constraints, including precaution, on decisions, and advocates for a prudent use of existing resources, especially credit. In this way, many development opportunities are missed, and the poorer the farmers the more opportunities are missed: the poor are, in general, more “risk averse” than the rich. This may explain (along with the lack of capital) most of the “backwardness” often negatively attributed to traditional peasants. In any case, risk considerations in general prevent resources from being fully utilized.

This is the basic rationale for direct intervention on markets. Far from negating the virtues of a liberal economy, they should be designed to increase the quality of the messages carried by prices in order to inform producers of consumers’ desires, and inform consumers of the difficulty in producing, without forgetting externalities which are not carried out by the markets as widely explained by economic theory.

Finally, every one agrees on the fact that private activities such as storage and trade are necessary, and that the provision of public goods in the form of infrastructures is essential to allow markets to function as well as possible. **The controversy is whether or not it is enough to avoid coordination failures.** Empirical evidence all over the world seem to prove it is not (Dorward *et al.*, 2007), but some argue that this is due to a partial liberalization process that discourages private activities (Kerralah *et al.*, 2002; Jayne *et al.*, 2002).

When referring to the coordination failure associated with price instability, it is impossible to manage this type of failure through ex-post instruments aiming at compensating the losers because coordination problems affect the whole system. Food prices are indeed key variables, determining wages, employment and inflation in less developed countries, as well as social peace and political stability. The risk is therefore systemic, and the option of ex-post compensations, as a safety net, becomes too expensive.

All these considerations explain why a purely economic approach may lead to the conclusion that large and sudden price variations are not efficient and should be avoided as much as possible. It does not mean that price signals must be neglected: obviously, techniques and preferences vary over time and relative prices must vary to indicate these changes to producers and consumers.

However, these evolutions are generally smooth, and take a long time to become significant, thus leaving ample room for progressive adaptation. For instance, the long-term trend of dropping agricultural prices (something between 1% and 5% per year) reflects technical progress for the benefit of consumers. But it is not the kind of price

variation facing most farmers, especially in poor countries. Most commonly, a given agricultural price goes from 1 to 2 and then to 0.5 in the space of three years. What message does this send to producers? How can they interpret it

Which Level for Action?

When public interventions should be envisaged, one has to decide at which level. Should it be a task for an international authority, a local community, a government, or a group of regional governments?

As pointed out in Boxes 2 and 4, there are no (or very few) completely independent markets, whether geographically or over time. Any decision taken at any level at any time is likely to impact other entities, at the same instant or at another time.

For instance, during the 2007-2008 crisis, some governments decided to cut rice exports in order to maintain domestic prices at reasonable levels as far as possible. They undoubtedly increased the world-wide penury, which let prices soar to incredible levels. They were severely condemned by the world public opinion for doing so. At the same time, they not only protected their own citizens as consumers, but they also avoided too much enthusiasm among their producers for increasing production next year. And that was sound, given the fact that the price of rice decreased by a large amount the following year. Indeed, because they were large operators, by doing so, they helped stabilize prices in the year after the peak.

Box 4 : Ex-Post Analysis of the Causes of the 2008 Price Spike

Over the period 2007-2008, most international agricultural prices doubled or even tripled. Milk was the first product to be affected, with the quick increase taking place during the spring of 2007, followed later in 2007 by spikes in wheat and maize prices. The price of rice, the last commodity to be affected, skyrocketed in a very short period during the first half of 2008. Almost all agricultural food products were affected with the exception of sugar. Tropical products and meat fared better than grains. A few months later, prices began to drop. The sudden rise in prices and the sharp drop a few months latter were unexpected. At the time, neither economic models nor international institutions predicted the price spike; experts were mainly concerned about the long term downward trend in agricultural prices.

Several studies have analyzed ex-post the possible causes of the food price spike. The main causes that have been identified are: (i) rapid economic growth in certain developing countries such as China and India which, together with higher incomes, led to a nutritional transition and increased demand for grains; (ii) adverse weather conditions in certain key production regions such as Australia and eastern Europe; (iii) a weak US dollar; (iv) high oil prices leading to higher production costs for agricultural products; (v) biofuel production; and (vi) speculative behavior (see, among others, Abbott *et al.*, 2008, 2009; Von Braun J., 2007). There is a widely shared opinion that these different causes act together and that it is difficult to evaluate the impact of each one individually. Using the Aglink model, Dewbre *et al.* (2008) found each of these factors to be equally important. The resulting impact, when all shocks are combined, is much lower than the price increase that was seen, underlining the fact that other mechanisms may have been neglected in the analysis.

Some Causes Are Controversial

Headey and Fan (2008) argue that neither the argument involving growth in middle-income countries—China and India do not show trade deficits for agricultural products over the period—nor the weather shock argument—the fall in output in several countries in 2007 was offset by increased production in other countries (Argentina, Kazakhstan, Russia, United States) and ultimately world grain production declined by 1.3% in 2006 but increased by 4.7% in 2007—are convincing.

Several studies have focused on the biofuel explanation. As underlined by Keyzer *et al.* (2008), it is clear that in the context of a scarcity of fossil fuels, biofuel production increases competition for land, fertilizer and labor. Moreover, the policy adopted results in high production subsidies for biofuels, and generates a completely rigid demand that bears a significant share of the responsibility for the food crisis. Some experts stressed the fact that, while the explanation is convincing for maize, it is less persuasive for wheat and rice (Headey and Fan, 2008). But Mitchell (2008) explains how the substitution effect induced by land competition for crops not directly concerned by the demand for biofuels may generate contagion phenomena.

Another controversial issue is the role of speculation in the process. In the press, financial speculation has often been accused of being responsible for the price spike. It is true that increased financial activity took place at the time of the price rise but the causal link is not at all clear. One must remember that higher volatility necessarily induces speculation because of speculators' function in markets (bearing risks). Consequently, as underlined by Headey and Fan (2008), speculation may be a symptom more than a cause of price volatility, "*l'écume sur la vague*" (the foam on the wave) (Chalmin, 2008). Despite several studies, it is difficult to assess precisely the role of speculation in the phenomenon, underlying the difficulties in economics of discriminating between alternative processes. As underlined by Gilbert (2008), uninformed speculation may be destabilizing and generate explosive price behavior. A new class of actors has entered commodity markets through index-based investment, viewing commodities as an asset comparable to others. The money involved may be substantial. However it is difficult to evaluate its influence on the price boom.

Finally explanations focusing exclusively on fundamental factors leave an important share of the price hike unexplained. Moreover, the rapid rise in prices followed by the quick fall some months later suggests a bubble phenomenon. Piesse and Thirtle (2009) explained the rice price increase by panic leading to export bans from major exporters, and underline that such behavior is costly for the world community.

On the other hand, Boussard, Gérard and Piketty (2008) show a model that, in 2005, predicted the phenomenon fairly well from purely endogenous relations and market mechanisms, without requiring any other assumptions such as drought, biofuels, changes in consumption, or speculation. It has been said that their model was a good predictor only by chance, just as a stopped clock indicates the right time twice a day. Yet, this model at least does not contradict the "endogenous hypothesis." In addition, similar results have been found with another model (Munier, 2010).

This observation leads to the conclusion that a world authority should be in charge of the problem. Yet, there are objections. The most important is that it will be very difficult to determine the proper international prices or bands of prices. Whatever steps are taken to stabilize markets, they will generate instant private rents or preclude private gains. Moreover, as seen above, international price stabilization will not affect a large share of domestic price instability, the portion that takes place within the band defined

by transfer costs from one market to another. Because most poor consumers face very high transaction and transport costs, large price fluctuations will remain in poor countries sucking them into the poverty trap. Furthermore, local communities do not have the logistical and financial capacity to regulate markets. For these reasons, the practical level for action is national governments or groups of governments. However some supports of the international community are needed. It will be addressed in the fourth section.

At present, national governments are largely deprived of power because of the multiple international agreements in force. In particular, the WTO ban on most technical measures to stabilize domestic markets is a serious impediment in this regard. The WTO agreements should therefore be revised to allow governments to define the agricultural policies necessary to improve food security. In this respect, one must emphasize the fact that, according to jurists, the Marrakech treaty provides almost all the necessary provisions to allow government intervention if it is deemed necessary, so that a formal renegotiation of the treaty would probably not be necessary. Only a strong reversal in how it is enforced should be envisaged.

2.2 Is Price Stabilization Feasible?

While direct public intervention in agricultural markets seems necessary under certain circumstances, the success of such intervention is, however, dependent on political and institutional conditions. Inadequate or untimely public interventions discourage private activities in commercialization (eviction effect) and generally decrease efficiency. Sometimes, they even increase uncertainty (Jayne *et al.*, 2006). It has been demonstrated that, in a context of price jumps, public intervention aimed at containing the leap could indeed worsen it, because of a lack of predictability (Chapoto and Jayne, 2009; Nijhoff *et al.*, 2002; Mwanaumo *et al.*, 2005). The private sector cannot operate in an environment where governments intervene in a discretionary and unpredictable way making prices even less stable (Byerlee *et al.*, 2006). State intervention is in this case seen as lowering efficiency by limiting local competition and private sector development. State interventions also generate rent-seeking behaviors and are the sources of maneuvers expected to serve the interests of specific actors. Thus, political economy consideration of existing contradictory interests and institutional contexts is necessary to understand food price policy designs and implementation as well as the difficulty of reforming agricultural markets (Jayne *et al.*, 2002).

These analyses, applied to price stabilization policies, are consistent with more general analyses of the forms of governance that prevail in policy elaboration and implementation. They insist on the capacity of diverse stakeholders (governments, lobby groups, etc.) to meet their objectives. At the World Bank, Kaufman considers that society engagement and state performance form the two pillars of good governance (Kaufman *et al.*, 2005; World Bank, 2005). His works led to the definition of six governance indicators that measure “government capacity to formulate and implement policies in an efficient way” and the “respect of citizens and [the] state for the institutions that govern their social and economical interactions.”

Somewhat summarized, these works suggest that the processes through which food price stabilization policies are elaborated and implemented can count as much as the content of these policies (how things are done counts as much, and maybe even more, than which things are done), and that, as a result, we have to analyze the forms of governance that drive policy elaboration and implementation. How is food price stabilization elaborated? What are the specific interests served by these policies? Which stakeholders participate (or not) in policy elaboration processes? How are food price stabilization policies implemented? Are these policies predictable enough? Are they effectively enforced by the State and respected by private actors? Among the many institutional factors that influence the ability of policies to smooth price volatility, three can be distinguished: policy effectiveness, policy predictability, and policy appropriateness to a plurality of interests.

Policy Effectiveness

Policy effectiveness is related both to the financial capacity of States to implement policies and to States' capacity to control policy enforcement and compliance (dissuasion and punishment of policy-circumventing strategies).

Policy Predictability

Policy predictability is linked to the State's capacity to elaborate and implement policies in a transparent way, so that private actors can correctly anticipate government actions and position themselves on food markets.

Policy Appropriateness to a Plurality of Interests

Policy appropriateness to a plurality of interests is related both to the capacity of private actors to define and represent their interests and to the capacity of the State to take into account these interests (pluralist system of interest representation, control of corruption and rent-seeking behaviors, arenas for discussion and negotiation, enhancement of capacity-building programs among different stakeholders, etc.).

In short, state interventions should be based on collaboration between public and private actions. They should be rules-based and relatively predictable, as well as credible, which implies sure and flexible access to financial resources and expertise. To be legitimate, intervention has to be the result of actors' discussions and negotiations, which in turn means that institution-building for organizations such as farmers' organization may be a necessary prerequisite. Rent-seeking behavior should be avoided as much as possible through transparency, the existence of press/media freedom, and exemplary punishment of adverse behaviors.

These institutional factors are likely to express themselves differently according to the level in question, given that prevailing stakeholders are different. In the next section, we will illustrate how these factors influence policies' ability to reduce food price volatility at the national level. At the regional and international levels, the prevailing stakeholders are different from those that are most influential at the national level. As a result, governance issues tend to differ a lot.

If we want to analyze the processes of elaborating and implementing food price stabilization, we need to consider a wide variety of stakeholders. For example, at the international level, States, traders, experts and non-governmental organizations influence these processes and should be taken into account. Considering States, we need to consider a great variety of stakeholders as well. In broad outline, we can distinguish between: (i) “high income states” that tend to support agricultural revenues (employment and farm problem, producer-side) and “low income states” that are more likely to defend food security (urban food problem, consumer-side); (ii) between “importing” and “exporting” states; (iii) between “small” and “large” states related to international trade, etc.

Policy effectiveness, predictability and appropriateness to a plurality of interests have much to do with the forms of coordination that prevail on the international level. Crucial governance issues arise. If one decides to regulate food prices at the international level through policies, should forms of coordination rely exclusively on intergovernmental agreements? How can one ensure policies’ long term financing, enforcement, transparency, and capacity to serve the general interest? Nowadays, there is no relevant international organization to ensure these four conditions (they are not covered by the mandates of either the World Trade Organization or the Food Agriculture Organization). Proposals have been made on setting up a new organization, the International Food Safety Agency, but many questions remain as to how to ensure this new organization’s effectiveness.

Theoretical Aspects: A Few Concluding Remarks

Finally, a consensus exists as to the difficulties and costs associated with state interventions in agricultural markets. The subject of controversy is the consequences of these difficulties and costs, and the way forward. For some experts, all of these considerations, added to the facts that high transaction costs hamper market operation and that public budgets are scarce, point to the argument that it will be more useful to invest in public infrastructures (roads, health, education) and in agricultural research and extension than in food price stabilization (Cumming *et al.*, 2006). While some agree that di-

rect public interventions may be useful because of the harmful effects of price instability, they argue that direct public intervention is associated with so many adverse effects that the cure is worse than the disease.

For others, coordination failures justify intervention, especially in LDC countries because of the dynamic gains to be expected in economies stuck in the poverty trap. Building an environment conducive to private activities is necessary but unlikely to be enough. In this case, direct public intervention in market is required.

Chapter 3 – Lessons from National Price Stabilization Experiences

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One of the main reasons for State withdrawal from agricultural markets in the mid-1980s was the poor efficiency and high cost of public intervention. As a result, it is useful to consider past and current experiences with price stabilization policies and derive lessons from them. A precise analysis of past experiences may indeed help define public interventions that maximize positive impacts and minimize adverse effects. This is the main objective of this section.

Fourteen case studies on price stabilization policies⁴ in a wide range of (geographical, socio-economic, and political) contexts and periods have been analyzed in order to identify key factors of success and the reasons for failures. Then, some recommendations are formulated for the proper implementation of price stabilization policies and for further research on new possible areas for public policy.

3.1. A Wide Variety of Contexts and Objectives but Few Combinations of Policy Measures

Over the past decades, price stabilization policies have been implemented in numerous countries and in widely different national contexts and periods. However, developing countries generally experienced the same historical trend in public policies: (i) strong public interventions until the mid-1980s, (ii) state withdrawal and priority given to the market until the end of the 1990s, and finally (iii) a return to public intervention in recent years. This evolution is in line with recommendations by international institutions, at least for the two first periods. It therefore underlines the importance of the official positions of these institutions.

The direct objectives pursued by interventions are diverse and highly dependent on the economic and social profile of each country. Low Income Countries tend to fight against the “poverty trap” and/or to protect consumers from soaring prices (i.e. Madagascar, Mali, Zambia, Kenya, and Malawi). Most Middle Income Countries seek to maintain low consumer prices in order to fight against urban poverty and promote the industrialization process, taking advantage of the improvement in competitiveness allowed by low wages (e.g. Thailand, or Indonesia). They also try to encourage agricultural production and a higher level of food independence through the incentive of relatively high producer prices (India and Indonesia). The objective can also be to protect the most vulnerable and malnourished people while specifically supporting

⁴ See the list of countries, products and periods under analysis in Appendix 1.

smallholder farming (e.g. Brazil). Finally, High Income Countries seek to protect their agriculture from external shocks in global markets in order to maintain their food independence, protect employment (e.g. the United States, the European Union, and Canada) and more generally aim to promote multi-functional farming (i.e. the European Union).

Domestic food price volatility in these countries can have different causes. Climatic factors affecting national production (for example, periods of drought in African countries can lead to large drops in national cereal production) tend to call for public interventions aiming at improving the operation of the domestic market (e.g. information systems, rural infrastructures, standardization, etc.), and opening borders for a better markets integration. Endogenous instability due to anticipation errors by players may call for other policies aiming at directly acting on marketed volumes in relation to demand and thus controlling boarders and using public stocks. International food price volatility may also lead countries to implement trade regulation measures, when small “price taker” countries are affected by price variations in international markets. In the fourteen cases studies we led, it is difficult to determine the relative weight of these different sources of domestic food price volatility: it is most likely that they both played a role. This partly explains why different kinds of interventions have been implemented.

Beyond the diversity of national experiences, broad characteristics in the content of implemented policies can be underlined.

Policies combine various instruments. This means that instruments are never implemented in isolation, but are always part of a package⁵ (policy mix). The table in Appendix 2 presents the wide range of instruments implemented and how they are combined in most of the fourteen cases studies. Following the typology of the ECART study (see Box 1 and Galtier et al., 2009), they consist primarily of “C” instruments (that is, instruments aiming at minimizing price instability through public intervention).

In particular, two main policy mixes are used in most of the cases under analysis:

- (I) trade regulation through quantitative restrictions + production support (input subsidies, farm credit, agricultural extension, etc.) + buffer stock used to define a price band (India, Indonesia, Malawi, Thailand, and Zambia); and
- (II) trade regulation (through tariffs or quantitative restrictions) + production support (Mali, Guinea).

These two kinds of combinations of instruments aim at balancing supply and demand. When prices are considered to be too high, an increase in supply on the domestic

⁵ See Appendix 1 for information on the combination of instruments used in each country under analysis.

market is obtained by encouraging production or imports and limiting exports, as well as by releasing public stocks if available. When prices are considered to be too low, supply reductions can be achieved by (i) limiting imports and production through set asides or price level adjustments relative to inputs costs; and (ii) limiting producers' deliveries to the market (facilitating storage by producers).

Decreases in supply can be combined with increases in demand (public stocking, facilitating private stocking of products). In this case, "C" instruments are generally combined with "A" instruments (that is, instruments aiming to stabilize prices through private interventions), leading to a combination of public and private actions. In such a context, buffer stocks enable the government to directly increase or decrease the quantities available on the domestic market. Countries that do not use buffer stocks are generally engaged in structural adjustment programs (e.g. Mali in recent years) or have weak institutional and administrative capacities (e.g. Guinea).

Some countries use also "D" instruments to act on the demand side, particularly in case of food crises. This is the case of India where consumption subsidies directly focused on the target population in order to resolve the potential conflict between consumers' and producers' interests.

In Brazil, programs benefiting both specific groups of producers and specific groups of consumers (Agriculture's Food Acquisition Program, PAA) have been implemented. Some products from smallholder farms are purchased at a subsidized price and distributed to vulnerable groups of consumers.

Burkina-Faso mainly used "A" instrument through its "fonds de lissage", a risk mitigation fund combined with "C" instrument (input subsidies). Concrete implementation modalities vary widely across countries (Box 5).

Box 5 : Diversity in Price Stabilization Policy Design and Implementation

Indonesia sets a price band associated with external trade restrictions through the Bulog. The producer price and the input price/producer price ratio are used to monitor the production trend and mitigate the problem of excessive producer incentives and accompanying costs. The width of the price band was also seen as a key parameter. It was progressively widened with the development of private trading activities, in order to avoid eviction effects. Bulog procurement generally concerned only a small volume (around 10%) of marketed rice production. Rice prices were maintained near the level of international prices during the period 1970-1997. Government intervention proved to be highly reactive to the changing context during that period. Strong efforts have been made to significantly strengthen the logistical capacity and managerial procedures of the Bulog. Extensive analytical studies on key parameters (size of margins between floor and ceiling prices, size of buffer stocks needed, etc.) have been conducted.

By contrast, after the economic crisis in 1997-1999, producer prices were kept 30% higher than international prices in spite of the negative effects on the poorest and the absence of additional reserves of productivity.

In **Burkina Faso**, since 2006, the guaranteed producer price in the cotton commodity chain has been connected to the international price. However, with rising fertilizer costs, food inflation, and dropping international cotton prices, the real floor price for producers is not high enough to ensure sufficient earnings and encourage production, in spite of producer price smoothing. Consequently, producers are replacing cotton with maize in crop systems.

In **Guinea**, the “Fédération des Paysans du Fouta Djallon” (the Fouta Djallon farmers’ federation) organizes the negotiation of the producer floor price between producers’ groups and traders at the start of each agricultural campaign. Technical elements are considered during the negotiations such as production costs and inflation. The floor producer price varies from one year to the next, but all producers know the price in advance (predictability). This policy leads to a dramatic increase in potatoe production from 150 to 16000 tons over the last twenty years.

In **Zambia**, guaranteed producer prices through public purchases are higher than the current prices on wholesale markets, providing strong incentives for producers.

In **Thailand** and **India**, because of lobbying pressure, the guaranteed producer price is too high, disconnected from the international price, and generates excess supply. In India, the growth rate in maize production was lower during the liberalization phase (1991-2004) than during the periods of heavy government intervention in 1964-1990 and 2005-2010. Real prices for consumers tend to have fluctuated more during the liberalization periods than the do nowadays.

On the contrary, in **Malawi**, due to escalating costs (massive stocks accumulated in state warehouses or exported at a loss) and financial constraints in the 1980s, the Agricultural Development and Marketing Corporation (ADMARC) was often unable to defend the minimum support price for maize (as well as the ceiling price in the 2001-2002 crisis). The price band was annually revised and moved closer to international parity prices. Support producer prices were reduced or withdrawn in many areas, and this lead to development of parallel and illegal markets. Such a process also occurred in the 1970s in Madagascar and Mali, leading to a stagnation of production levels and an increase in imports.

In **India** in the 1970s, there was no difference between the guaranteed producer price for food sale operations to vulnerable groups through public storage (tool targeting consumers) and the support price for production (tool targeting producers). With the continuously rising support price (disconnected from international trends) and excessive public purchases, such confusion in targeting the population and pricing policies had negative effects on the food inflation rate.

3.2. Factors of Success or Failure

Case studies show a number of successes in terms of production levels, price stabilization, yields, consumer protection, and independency from the world market. Indonesia, for instance, shifted from the world largest importer of rice in the 1970s to a self-sufficient country in the mid 1980s.

A virtuous circle sometimes appears in poor countries stuck in the poverty trap, where the risks involved in production activities result in a strong supply response (see Box 6). Labor productivity and agricultural incomes tend to improve, provided that there are productivity reserves. Reserves of productivity may come from technological innovations such as the green revolution (improved seeds, high yield varieties) or from an increase in capital (public capital, like irrigation facilities or private capital bought by farmers through investment). While more capital often implies that less labor is used, the rising incomes associated to this increase in capital implies higher demand for non-agricultural goods and services as well, which offers employment opportunities in non-agricultural sectors. When the product under stabilization is an important part of consumers' diets, the price of food tends to fall, but producers' incomes do not drop because larger amounts of products are sold. The food policy dilemma is thus solved.

Box 6 : The Key Impacts of Productivity Improvement

In countries such as Indonesia, India, Zambia, Kenya and Malawi, the green revolution made new gains in productivity possible: improved seeds and high yield varieties of wheat, rice and maize. In **Indonesia**, new technology was available to allow labor productivity growth, and the stabilization of rice prices was one component of rice modernization. The other components were: a technical package (distribution of high yield varieties, provision of fertilizers and pesticides at a highly subsidized price), rural infrastructures (irrigation systems, roads, schools, market places, communication systems, electrification, public health facilities), extension services, education, etc. In **Malawi**, positive trends in maize production and yields in the 1983-1993 period can be explained by the implementation of a package of public policies including breeding programs, investment in agronomic research, extension, seed distribution systems, rural infrastructures, ADMARC's interventions, and fertilizer and credit delivery. Since 2005, the dramatic increase in maize production is also partly due to the dissemination of a technical package through the Agricultural Input Subsidy Program (vouchers for buying inputs at a subsidized price).

In a context of state withdrawal such as in **Guinea**, support production actions combined with seasonal prohibitions on potatoes imports have been implemented by farmers themselves, organized within the Fédération des Paysans du Fouta Djallon. The Federation has developed numerous services for its members: providing certified seeds and fertilizers at acceptable interest rates, extension, management advice, hydro-agricultural infrastructures, storage capacities, rural roads, etc.

It must be stressed that implementing these "green revolution" techniques requires large quantities of capital (improved seeds, fertilizers, and waterworks). It would not have been possible for peasants to get access to such inputs without credit, and access to credit would not have been possible without a minimum of output price stability. One might notice, however, that repeated access to credit also depends on harvest risks and input costs. Producer price policies have to take into account input costs if they want to maintain producers' revenues and their capacity to access credit. This is why policies combining output prices and input costs are particularly interesting.

However, a large number of factors are at stake, and instruments are combined, which means that the observed positive social and economic changes cannot be attributed to

price stabilization policies alone. Moreover, some measures have had negative unintended consequences that call into question the sustainability of the policies involved: increasing costs, inefficiency of state activities, eviction effects on private operators, large-scale corruption (see Box 8).

Several types of factors of success or failure for price stabilization policies can be identified and classified in two broad categories: (i) technical-economic factors, and (ii) political-institutional factors: policy effectiveness and predictability, consultation and negotiation among actors, problems related to rent seeking and corruption. They will each be addressed in turn.

3.2.1 Technical and Economic Factors

The appropriate choice and calibration of instruments are critical in the success or failure of market regulation. This appears to be a very complex task that requires precise technical expertise. Case studies reveal four key points: (i) the level of the floor and ceiling prices, (ii) the impacts of initial endowment in factors, (iii) storage and financial capacities, and (iv) costs and management of over-supply.

Floor and Ceiling Price Levels

The level of the floor price (in relation to input costs) will encourage or discourage production. It has to be adjusted according to the context of the country. Poor importing countries will encourage production, especially if the product is a staple food. In theory, the band has to follow international trends (see Box 5) but, in the case of low international prices and very poor countries where most of the population is engaged in agriculture, it would be worth considering initially maintaining prices at a higher level. For many agricultural producers who are net buyers in developing countries, the issue is to both keep food prices low for consumers and maintain food prices at an encouraging level for producers (adjusted to production costs). In these situations, fertilizer subsidies could be an interesting option: they can make it possible to maintain an encouraging price for producers without raising prices for consumers.

Exporting countries should take care of their impacts on the international market and of rising costs related to increasing production (see Box 12). In order to reduce the risks associated with agricultural activities (see chapter 2), the floor price has to be publicly announced at least before the crop year starts.

The price band has to be wide enough so as not to discourage private operators. The gap is highly dependent on transport and storage costs in the country. A gap of 50% between the floor and ceiling prices would generally be sufficient to avoid the eviction effect.

Another question relates to the use of pan-territorial or differentiated regional prices: the former may be easier to implement but the induced effects on remote areas, which are in this way advantaged, must be taken into account; the latter make it possible to take into account transport costs and have less negative impacts on traders. The Malawi case study illustrates a situation where, because of high transportation costs, pan-territorial food prices tend to maintain production in some areas where it would not be profitable without pan-territorial prices.

Impacts of Initial Endowment in Factors

It is worth noticing that price stabilization policies may have detrimental effects when the initial distribution of productive resource is very unequal (see Box 7). This kind of policy will benefit producers who are well endowed in land and capital more than others. Those who have the largest farms and the best links to the market are in a position to increase their marketable surpluses. In contrast, the price stabilization policy will not have any effect on farmers not trading on markets at all because their access to land is so limited that they do not produce enough to sell. For this specific population, other measures, such as free input distribution or income diversification support, have to be implemented. The question is slightly different for net buyers who sell their harvest and have to buy products at a higher price during the year. For them, price stabilization policies would improve their situation and maybe allow them to become net sellers. This underlines that pricing policies should not be addressed independently from other policies. Policy coherence needs to be sought in order to be sure that the pricing policy is pro-poor. The issue of inequalities in the distribution of production resources must be addressed in a serious way. In some cases, policies targeting specific sectors of the population may be an appropriate solution even if this involves complex institutional matters, as will be seen below.

Box 7 : The Importance of the Initial Distribution of Productive Resources

In **Zambia, Kenya and Malawi**, a large proportion of producers are net buyers.

In **Zambia**, a large share of producers do not have produce enough to sell surpluses. What is more, they never sell and therefore cannot benefit from a price stabilization policy. Since land distribution is very unequal, only the larger producers benefit from the policy at the expense of the smaller ones. Cereal consumption indicators show there has been little—or no—progress in food security and the increase in production is mainly exported while 40% of the population is affected by malnutrition.

In **Malawi**, agriculture generally consists of small-scale farmers. A critical issue is the very smallness of cultivated tracts of land (less than 0.5 ha per farmer). In this case, free input distribution programs seem to be very successful in terms of increasing maize production. These programs enable intensification, even for farmers who are not linked to markets but who will depend on the development of extra-farm activities to see an increase in their incomes.

In **Kenya**, agriculture is characterized by a dual structure: the top 10% of farms account for 85% of all domestically marketed maize, while 62% of rural smallholders are net maize buyers. Given this structure, the National Cereals and Produce Board (NCPB) policies designed to increase the domestic price of maize in 1995-2004 had the effect of transferring income from three million

urban consumers and almost sixteen million small-scale farm households (net maize buyers) to five million small-scale farmers in a high potential area for maize and a few thousand large-scale maize farmers (net maize sellers).

In **Brazil**, since 2002, in the context of very unequal distribution of production factors and incomes and a high percentage of the population in a situation of poverty, Agriculture's Food Acquisition Program (PAA) has been targeting specific population groups:

- small-scale family farmers, with a clear objective of strengthening smallholder farming (productivity and product quality) by purchasing products at a fair and stable price; and
- vulnerable consumers (through school restaurants, hospitals, associations, etc.) with a clear objective of improving access to food for the poorest, both in terms of quantity and quality (in particular, the distribution of milk for children).

However, such targeting requires strong administrative capacities (definition of criteria, registering, controls, etc.) that generally do not exist in LDCs.

Storage and Financial Capacities

The size of public storage capacity and the access to flexible resources are fundamental parameters because the state has to be able to buy enough products to maintain the advertised floor price. As will be argued below, the credibility of the policy is of utmost importance. This implies that the state does what it has promised to do and therefore that it has access to sufficient financial resources and storage facilities. Storage could be the result of a public-private partnership where the state contracts with private actors for a given amount of storage. Such arrangements get private actors involved in the policy process and reduce the costs associated with public activities (generally higher than private actors' costs).

Costs and Management of Over-Supply

When reserves of productivity exist, production may rise very rapidly and result in surpluses. This makes storage more expensive and the export of surpluses more difficult. It might generate adverse effects on the world market. Because many countries were not able to properly manage costs, they had to withdraw from market regulation. When a country shifts from importer to exporter position and when domestic prices are higher than international market prices, the issue of how to deal with surpluses takes on the utmost importance. In the past, this has often been managed through export subsidies at very high cost (European Union) or through international food aid (United States). Such policies create unfair competition and may damage the local production of trading partners (see Box 8). Policy adjustments are therefore crucial to avoiding excessive costs. This could be done by decreasing the level of floor prices (but at the cost of bankruptcies if farmers had to go into debt), quantitative limits on production or measures such as contract farming (see below), which provide a guaranteed floor price for only a predetermined quantity of production.

While food price stabilization policies' costs such as public storage are high, they have to be compared to food price instability costs (social costs derived from food price instability for producers and/or consumers). These later costs are difficult to estimate and further research is needed to carry out cost-benefits analyses of food price stabilization policies that consider the welfare of tax payers, producers and consumers alike.

It also seems inefficient to maintain high prices to support an agricultural production for which a country does not have any competitive advantage (and that would not be competitive without the price support system if subsidizing exports is not considered). However, we have to consider the case of countries that do not currently have any competitive advantages and the expected side effects of allowing agricultural development through sound agricultural policy.

Surpluses are not necessarily a problem and quantitative limitations on production are not necessarily relevant when surpluses are considered from a regional perspective for instance. Intra-regional trade therefore requires political consensus among countries as to which country has comparative advantages for a given production and could supply the region, which is not an easy task (see below).

Box 8 : The Crucial Question of Cost Management

The difficult transition from importer to exporter is illustrated by the cases of Indonesia, Zambia, Malawi, and the EU.

In **Indonesia**, Bulog has experienced a dramatic increase in its costs, especially when it has to manage surpluses (\$30 million US per year in 1969-1974, \$80 million in 1970-1984, then \$90 million in 1993-1994, and even \$200 million when export subsidies are included), which has almost lead it to bankruptcy. However, Bulog had access to financial reserves partly because of the increase in the price of oil. Moreover, rising costs (due to large stocks, subsidized exports when there were surpluses and subsidized imports when there were production deficits) led to reforms and adaptations by Bulog: reconsideration of the floor price, removal of fertilizer subsidies and the ceiling price announcements. In **Indonesia**, the policy option was to act on the relative prices of inputs and production.

In **Malawi**, it seems that because adjustments were not made in time, stocks accumulated, surpluses were exported at a loss, and the costs involved with the storage policy increased, putting the state in the position of not being able to provide price support in some remote areas.

Zambia benefited from revenues generated by copper.

In the **EU**, for some products surpluses were exported at subsidized prices that created unfair competition with producers based in importing countries. For sugar and milk, quantitative restrictions were combined with the price stabilization policy allowing supply management.

Similarly in Canada prices support is associated with production quotas targeting the national consumption level

In **Guinea**, potato surpluses can be exported to neighboring countries. In this case, exports tend to enhance a regional integration process, and can partially replace imported potatoes from other regions.

In **Brazil**, it seems that the program purchasing products from smallholder farms avoids the adverse effects of over production by limiting the amount of direct support per farmer and per year.

The question of cost management is also critical in situations other than surplus management. In **Mali**, for instance, the Office in charge of managing the intervention stock has had difficulties accessing financing. Two public buffer stocks exist in Mali, but none of them has proper financial capital: stocks managers have to search for credit before buying cereals. In a situation of rising prices, this implies both delays and a smaller scale of intervention, which ultimately undermines stocks' capacity to overcome price raises. This occurred in Mali during both the 2005 crisis and the 2008 crisis, when only 28,000 T and 53,000 T were able to be destocked, which was insufficient to really influence price levels.

This in-depth analysis of countries' experiences allows for the following recommendations to be formulated.

The ability to properly design policies and set a number of technical parameters is a key factor in ensuring the effective functioning of price stabilization policies. Their adequacy to the specific economic, social and institutional context of each country and each government's objectives, and the ability to foresee and adapt to changing contexts are key factors for success. This therefore requires high technical capacities and access to a large range of information and analyses. It is important to evaluate in advance the impacts of policies on the various types of households and possibly which sub-population to target.

Clear differentiation between long-term and short-term objectives and good understanding of substitution effects between products (which depend on the nutritional features of the products as well as food habits) are necessary. Pricing policies should be part of a coherent set of policies involving several instruments. Policies should accompany, but not replace, private operators. States should have the means to implement their policies, in particular sufficient financial resources and expertise to shape, implement and adjust actions.

3.2.2 Political and Institutional Factors

Considering the processes by which policies are defined and implemented, different factors play a decisive role in the policies' ability to smooth food price volatility. The case studies led in different national contexts reveal that perverse effects can occur when policies:

- are not very effective,
- are not very predictable, and
- do not reflect a plurality of interests.

The ***low effectiveness of policies*** is a factor that can undermine policies results, particularly in low income countries characterized by weak state capacity and/or legitimacy. In these contexts, announced price policies tend not to be effectively implemented or to be by-passed by private actors (who are not punished for by-passing them). Indeed, the low effectiveness of policies can be attributed to either low financial capacities or low enforcement control. Financial capacities are a crucial determinant of policies' successes in the case of stock regulation, as seen above, and production enhancement measures, while enforcement control is a crucial determinant of policies' successes in the case of trade control. Drawing from the Malian case, Box 9 gives an illustration of the importance these factors can have in policies' results. The Mali example can be extended to other low income countries that either lack financial capacity and autonomy (dependency upon foreign aid) or can barely enforce the compliance with policies (corruption and by-passed policies). These situations call for recommendations in terms of State capacity building, and are consistent with the recommendations made by the Organization for Economic Cooperation and Development (OECD) and by the World Bank in "fragile states".

Box 9 : Policy Effectiveness: Financial Capacities and Enforcement

The **Malian** government implemented food price policies through trade control measures (export restrictions, import tariff wavers) and marketing measures (input subsidies, food security stocks). However, these measures did not always have the expected effects because of poor public financial capacities (see Box 8) and reduced enforcement.

During the 2005 and 2008 crises, exports were banned in Mali, but this decision was not respected by private operators who decided to export illegally across unsupervised borders or through informal agreements with customs officers. Due to a low capacity for enforcement and punishment, the government could not end these illegal exports and act upon price levels.

Other countries that do have proper and consequential financial capacities can, on the contrary, better ensure their policies' enforcement and control. This is the case, for example, in **Zambia** and Indonesia where the high public cost of regulating prices is respectively covered by revenues from the copper and petroleum industries. In Brazil, the implementation of a complex program such as the PAA was possible thanks to the State's strong administrative capacities and because the State devoted significant financial and human resources to the program.

The ***low predictability of policies*** is a second institutional factor that can undermine policies' ability to smooth food price volatility. This refers to the degree of transparency in the information the state provides on what policies have been decided. When this information is transparent, private actors can correctly anticipate state actions and take them into account in their own actions. However, when the information is not very transparent, private actors can hardly anticipate what the State's actions will be and may prefer to act as if policies were simply absent. This eviction effect is particularly strong in the case of trade control policies. Drawing from the cases of different East African countries, Box 10 illustrates the importance of policy predictability in determining policy results. These situations call for the encouragement of transparency in policy processes.

Box 10 : Policy Predictability

Studies conducted in **Zambia**, **Kenya** and **Malawi** show that the volatility of maize prices was exacerbated by discretionary policies. The unpredictability of trade policies led to diminished interest by private actors in marketing and trade functions, and resulted in situations where prices fluctuated more than necessary. In Zambia, in 2001 and 2005, drought led to price fluctuations that were exacerbated by government interventions: the government advertized maize imports to contain rising prices, but publicly supported imports were arranged too late and uncertainties about the level and pricing of these imports limited private imports, resulting in very large increases. The story is similar in Malawi and Kenya. In Malawi, for example, exports were banned in 2006 and 2007, despite above average harvests, worsening maize prices situation for net maize sellers. In Kenya, in 2008, delays in government imports pushed maize prices higher and maize prices stayed at very high levels in late 2008 despite the tumbling of world prices (a state of emergency was declared in January 2009 and the import duty was finally lifted).

On the contrary, when policies are relatively transparent, private actors can anticipate public actions and position themselves in markets efficiently. **Madagascar**, with the running of the Rice Platform, is a good illustration of the positive influence predictable policies can have on price regulation.

The fact that *policies may not reflect a plurality of interests* is the third factor identified through the case studies that may undermine policies' results. In some countries, policies can be assimilated to the attribution of rents to a limited number of actors (Zambia for example, see Box 11), while in other countries policies seem to be more legitimate and are the result of dialogue and/or negotiation processes where different actors have the capacity to represent and defend their interests (Madagascar for example, see Box 11). These examples call for greater attention to the influence that private actors do indeed have in policy making processes. Recommendations should focus on the enhancement of transparent and pluralist systems of interest representation but they must take into account the capacity of actors to effectively represent and defend their interests in dialogue and negotiation arenas as well. In some cases, capacity building programs are needed to ensure actors participate in these policy making processes.

Box 11 : Policy Appropriateness for a Plurality of Interests: Dialogue Processes as the Key ?

In **Zambia**, maize trade and marketing policies tend to benefit a small number of actors, and as a result their redistributive effect can be questioned. Pan-territorial prices benefit net seller producers only (and not to the smallest producers who are net buyers), and are strongly influenced by the Zambian National Producers Union. Import licenses are attributed selectively to industrial millers and traders, who tend to maintain close relationships with government officials. There are no official dialogue and negotiation arenas, and marketing and trade policies are defined in a way that is not transparent.

In **Madagascar**, rice marketing and trade policies have been discussed since 2005 within a "dialogue platform" where the different actors of rice sector are represented, and where market information is analyzed. Since then, domestic markets have stayed relatively calm in comparison with international markets. Guinea provides another positive example of when

discussions between actors led to the implementation of private measures that regulated the operation of potato markets.

In Brazil, the proactive participation of different stakeholders (farmers' cooperatives, enterprises, social control councils and committees, etc.) has been one of the reasons for the success of the Agriculture's Food Acquisition Program (PAA).

While the implementation of mutual information processes seems to be a promising innovation, accompanying policies aimed at strengthening actors' capacities have to be encouraged as well in order to help actors better define (expertise) and defend (negotiation) their interests.

Effectiveness, predictability, and appropriateness for a plurality of interests: these three factors influence policies' ability to lower food price volatility. The case studies led at national level highlight their influence, which depends on the political instruments considered (see the Table in Appendix 3).

At the regional scale, the experience in West Africa tends to demonstrate that these political and institutional factors are particularly critical for attaining the positive results expected from regional integration (see Box 12).

Box 12 : Advantages and Limits of Regional Integration for Addressing Food Price Volatility

Today, regional integration processes, which are seen as a powerful driver for development, tend to be growing stronger, particularly in Africa.

In theory, many advantages are expected from regional integration (De Melo, 1993; Hugon, 2005), which could be favorable for price volatility reduction compared to actions at the national and international levels. Here, one can mention a wider and more competitive market, economies of scale and better allocation of resources, a more stable and predictable institutional environment (national policies are "locked" within common policies, national lobbies are limited), standardization and "commoditization" of regionally exchanged products, reduction in transaction costs (due to geographical, socio-economical, and cultural proximity) compared to the international market, etc.

In West Africa, ECOWAS is currently reflecting on how to address food price volatility in the framework of its Common Agricultural Policy (ECOWAP). Reflection focuses on both common trade instruments (which is a fundamental part of regional integration and quite advanced), and regional cooperation to manage food security stocks and social transfers. Indeed, the regional dimension of food crises in West Africa, as illustrated in 2005, encourages countries to start building a regional approach to the management of food price peaks.

However, the economic heterogeneity of West African countries, the different sensitivity to imports (less for landlocked countries or the CFA franc zone), the divergent interests, differing points of view on trade, and the relative newness of the integration process make it difficult to see the advantages of regional integration. For instance, the Free Trade Liberalization Scheme adopted in 2004 is far from being effective (there are still many obstacles to trade within the region), and the finalization of a Common External Tariff is facing considerable difficulties.

The Desirability and Feasibility of Public Intervention at the National Level: Some Concluding Remarks

The analysis of past and current experiences with market regulation reveals some encouraging successes and allows one to highlight some common features in these experiences. Management of agricultural price instability has to be part of a larger agricultural policy designed according to the specific context and objectives of the country in question. A wide range of instruments exists and combining these instruments in policy mixes is recommended. To avoid the excessive costs often linked to public intervention, instruments can be implemented by private operators under public supervision rather than exclusively by public actors.

All the problems faced by rural areas today will not be solved by market regulation. Other measures will be necessary, but reducing risk appears to be a condition for increasing labor productivity and incomes in poor areas. Measures aiming at improving market operation (information, discussion, standardization, etc.) as well as measures mitigating the negative effects of price volatility (such as social transfers) are complementary to market regulation. They will not be enough.

Some of the desired features of market regulation can be drawn from national/regional experiences. The desirability of price stabilization is highly dependent upon the general situation of each country, and policy design must be context-specific. If one seeks to replicate experiences, then many factors have to be considered, including the country's level of development, the proportion of the population in the agricultural sector, the external trade balance, the location of production areas, land distribution, transportation facilities, and the institutional and political contexts. Regulation has to be flexible, part of a broader agricultural policy that is constantly adapted to changing conditions in world markets and domestic production. This implies having a team of experts to analyze the situation and a wide range of information available.

Policy success in poor countries is highly dependant on the existence of productivity reserves. These reserves may come from technological innovation or better access to capital. The later can be obtained through the provision of public goods such as irrigation facilities or inputs subsidies. The problem is generally the cost of this kind of policy when public funds are scarce. In order to keep flexibility in the system, the policy should not aim at maintaining a completely fixed price. Rather, it should allow for a relatively wide and flexible band between floor and a ceiling prices in which the private sector can operate. This band has to be adapted over time in function of domestic and international conditions, which supposes extensive expert analyses. State interventions should be rules-based and relatively predictable; the stabilization agency should have flexible and sure access to financial resources. To be legitimate, the policy must consider the opposite interests of the actors involved, and has to be the result of discussions and negotiations among actors.

Collaboration between public and private actions seems very relevant. In particular, physical handling of commodities could be left to private firms, even if the latter receive

a State price guarantee. Private-public partnership could also be considered for storage: public actors (central states) would act as “project owner” and decide whether to buy or release stocks while private actors (banks, producers’ organizations) would act as “project supervisors” and sell or buy food and cover the financial cost of holding stock according to public decisions (contract between the State and private actors). This makes it possible to simultaneously solve two problems associated with public intervention: excessive commercialization costs and the eviction effect.

Price stabilization mechanisms (based on a price band defended through storage and imports under public supervision) or public contract farming (which guarantees prices for predetermined quantities attributed to peasants’ organizations) are efficient ways to stabilize prices. With the first option (price stabilization based on a price band), it is necessary to control external trade unless the price band is always included in the band defined by transfer costs from or to the international market. In this case, speculative attacks by the regulation agency are also avoided. If large fluctuations in international prices move the domestic band out of the band defined by transfer costs, trade regulations are necessary. This could be done by quantitative restrictions such as import licensing or variable tariffs, adjusted to maintain the domestic band within the larger band defined by transfer costs between the domestic and international markets.

With the second option (contract farming), controlling external trade is not necessary because the guaranteed price concerns only predetermined quantities of products. Another advantage of this solution is that it allows one to target specific categories of farmers.

However, the problem associated with quantitative measures is that they are often associated with bribery and rent-seeking behaviors. As stated above, some paths forward exist: rules-based, transparent public interventions combined with clear and prompt action against corruption, and capacity building ensuring that the different kind of actors are able to defend their interests may make it possible to define institutions and mechanisms to minimize these adverse effects.

It has to be noticed that the compatibility of such measures with WTO rules is not guaranteed. Price stabilization instruments such as buffer stocks or guaranteed prices should generally be lowered (they are included in the “amber box” of trade-distorting subsidies). Public stocks can only be maintained as part of a food security policy, and if they do not aim to support production through producer prices that are higher than international prices (see the WTO’s Agreement on Agriculture (AoA), Appendix 2). Structural stabilization instruments on import prices such as variable levies are strictly forbidden (AoA, Article 4:2), and import price bands have been challenged in the Dispute Settlement Body (the Argentina-Chile dispute). Only punctual measures such as the AoA’s Safeguard Clause (SGS) allow for the increasing of tariffs beyond bound rates. Moreover, since many developing countries under structural adjustment did not notify price stabilization and non ad-valorem protection instruments (e.g. specific customs duties, tariff-rate quotas, etc.), they are no longer allowed to introduce these

instruments. Many developing countries are also not allowed to use the SGS because they used ceiling tariff rates.

However, some flexibility exists for developing countries in the WTO arena, especially the least-developed countries. Customs duties can be modified since they remain below the bound level (this is very relevant for countries that have relatively high bound tariffs and are not subject to structural adjustment constraints). In addition, WTO rules are not fixed and the current negotiations, while they do not call into question the liberalization trend, offer an opening to get more policy space for the use of some instruments. Some (“small”) developing countries have used or still use non-WTO compatible instruments with nearly no risk of complaints. Finally, regions such as West Africa—if ECOWAS becomes a WTO member—are also little exposed to WTO complaints.

More market-friendly measures, such as the warehouse system or insurance, have the advantage of being clearly WTO compatible. However, they induce costs for farmers without significantly decreasing risks, and therefore do not seem to be as efficient as price stabilization mechanisms or contract farming.

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Chapter 4 - What Role for the International Community?

Bricas N. , Daviron B. , Galtier F.

Obviously, managing domestic price instability is the government's responsibility. However, various considerations tend to indicate that some support from the international community may be needed:

1. The *governments of many developing countries lack reliable information on international markets.*
2. *Many developing country governments' resources are too limited to fund price stabilization policies or policies aiming to mitigate the effects of price instability* (safety nets and other related D-instruments).
3. Rising international food prices can reduce the currency reserves of importing countries (Sarris, 2010). For some countries, this may imply *rationing food imports*. For others, it can generate a deficit in the balance of payments and *a decrease in the exchange rate*, inflation, and a loss of purchasing power for consumers. This problem affects only countries with low currency reserves and/or countries for whom food imports account for a large share of the balance of payments.
4. The policies developed at the national level to reduce the transmission of international instability to domestic markets (e. g. variable levies on imports, export restrictions) are not always effective because of their budgetary cost and the difficulty some states have in effectively controlling their borders. Moreover, their use is bound by WTO rules. In addition, these policies can increase international price instability. In the case of crisis, restricting exports can cause *shortages* such as the one some importing countries experienced during the 2008 crisis. Policies that aim at insulating the domestic market narrow the international market and, as a consequence, make it more vulnerable to climate shocks. This can increase international instability and thereby increase countries' incentive to insulate their domestic markets (Keynes, 1942). This phenomenon has been seen since 2008 with the strong development self-sufficiency policies and land grabbing. Hence, there is a need for international rules to arbitrate between countries' need to protect themselves from international instability and the need to lessen the destabilizing effects generated by these policies.

These considerations lead to the conclusion that some actions at the international level must be considered to complement the actions at the national and regional levels. We will first present a brief historical analysis of how the problem of price instability has been addressed at the international level. Then, we will discuss what support the international community could provide in the coming years. We will distinguish between different types of support: the provision of public goods, transfers to the governments of some developing countries, and the setting up of international rules.

4.1. Historical Analysis of Price Volatility

International food price volatility has a history. Its characteristics (magnitude), its causes, and the solutions imagined to deal with it have changed over time. Food markets have undergone structural transformations that have changed the way international prices are determined and the role they play in balancing world production and consumption.

Since WWII, several attempts to regulate international food markets have been made by international cooperation structures. Initially, food markets were characterized by:

- widespread overproduction and/or production factor surpluses;
- a disconnect between domestic prices and international prices organized by agricultural policies; and
- a shared objective of national self-sufficiency (except, of course, for tropical products) that implied limited involvement in international trade.

Two radically different approaches followed one another.

The 1960s and 1970s were the golden age of international commodity agreements. The aim was to stabilize (actually support) international prices based on international stocks and/or export quotas. At this time, international cooperation was seen as a matter of dealing with how nation-state oligopolies coordinated the collective management of production surpluses. This was the very purpose of international commodity agreements.

From the mid-1980s to the mid-2000s, overproduction was still the problem, but the proposed solution was instead to organize a general and coordinated dismantlement of agricultural policies that isolated domestic markets from international markets. WTO negotiations were organized with this aim. Because of the increasing involvement in international trade (as exporters or importers), the disconnect between domestic and international prices was becoming increasingly costly for national budgets. Of course, international price stabilization (and price support even less) was not an explicit objective of the WTO negotiations. Yet, the liberalization process was expected to eliminate overproduction and thereby raise prices (one can recall the meticulous estimate of the impact of the WTO negotiations on international markets!). Moreover, an open world market was supposed to absorb production shocks easily.

More than twenty years later, the resulting situation is very different from what had been expected. First, the dismantlement of isolating agricultural policies is clearly incomplete. Some countries did it (the EU, the USA) but other—bigger and bigger—countries (China, India) did not. Second, overproduction did vanish, as illustrated by the low level of world stocks. But the current world supply and demand situation rises two questions:

- Is the current period still characterized by structural overproduction as it was during most of the decades following WWII? Are agricultural frontiers not nearing their end? Is the age of cheap energy not coming to a close? Are the booming Asian economies that generated an increase in food demand radically new?

- Is it really possible to ensure some international price stability without a degree of overproduction? Is overproduction necessary to have a volume of stocks that is big enough to “absorb” production shock?

It is still too early to elaborate a full interpretation of this renewed volatility. Two different and opposite interpretations can be adopted:

- The 2007/08 crisis can be seen mostly as a transition crisis signaling the strains generated by the incompleteness of the liberalization process. In some countries domestic prices are still too disconnected from international prices. Public agencies are still too active in food storage to allow private actors to invest in the business. Accordingly, liberalization must be pushed further.

- Alternately, the 2007/08 crisis can be interpreted as evidence that the liberalization process is not viable. No government can accept exposing its population to “foreign” instability, and international markets are intrinsically unstable. Accordingly, the crisis confirms that China’s and India’s refusal to link their domestic prices to international prices is relevant.

It would be very useful to discuss these two perspectives and reach a consensus on how to interpret the 2008 crisis in order to design policies to manage price instability. But building such a consensus will take time. We can assume that after a period of surpluses, we are entering a period of scarcity or, at least, of greater tension in international markets (booming demand from emerging countries, rising oil prices, etc.). The IPCC’s 4th report assumes that climate change will affect agricultural production, not only changing land use in each region of the planet, but also increasing instability. “It is very likely that hot extremes, heat waves and heavy precipitation events will become more frequent.” (IPCC, 2007.) In any case, 2008 was not an isolated incident, and international markets seem to have durably become more unstable. In such a context, what are the possible strategies and available or possible instruments to manage this instability at the international level?

Box 13 : Some Facts on the Evolution of International Wheat Prices during the 19th Century

Throughout the 19th century, wheat prices tended to converge and stabilize in the Atlantic economy. This is clearly illustrated by Tables 1, 2 & 3 that show current monthly wheat prices (in dollar per quintal) in New York and Liverpool. Table 1 shows the overall trend from 1800 to 1913, and Tables 2 and 3 show “enlargements” of Liverpool prices at the beginning and the end of the long 19th century.

Prices in New York and Liverpool show an obvious convergence. At the beginning of the century, prices in Liverpool were frequently double New York prices. Then, they tended to converge and become synchronized. O’Rourke and Williamson (O’Rourke and Williamson, 1999) have demonstrated that this price convergence could be seen in all of the Atlantic economy.

Moreover, price stabilization is remarkable. The phenomenon is particularly pronounced in Liverpool (see Tables 2 & 3). At the beginning of the 19th century wheat prices could double or be halved in a few months. By WWI, price volatility had been markedly reduced—to less than 25%. An astonishing stability could be seen between 1897 and 1907.

How can this degree of price stabilization be explained? The enlargement of the market can be mentioned, but it is certainly not the only factor. Various institutional innovations contributed. Cereal standardization, starting in Chicago in the 1850s (Cronon, 1991) helped to reduce substitution costs between origins and then helped to increase the number of suppliers. The creation of futures markets, which followed the creation of standards, and the building of telegraph networks lowered information and storage costs. At the end of the

19th century, English wheat importers—like African rice importers at the end of the 20th century—may have adopted a price stability strategy to promote the consumption of imported food. Whatever the explanation, price stability prevailed in a time of victorious free trade when, at least in the United Kingdom, no public policy influenced price formation.

Table 1 : Monthly Wheat Price on the Liverpool and New York Markets 1800-1913

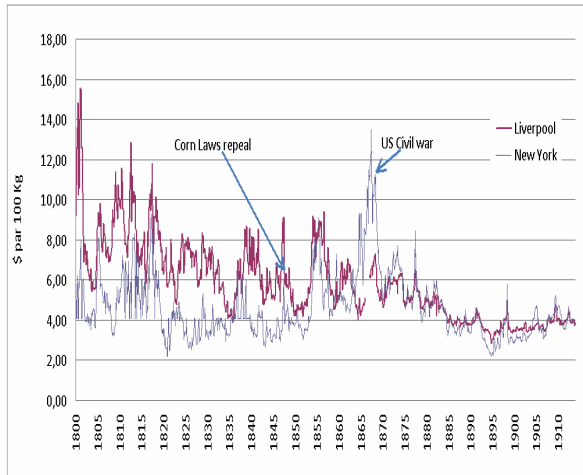


Table 2 : Monthly Wheat Price on the Liverpool Market 1800- 1820

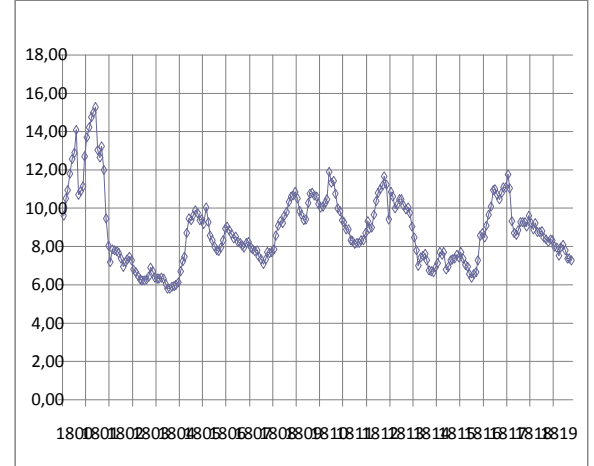
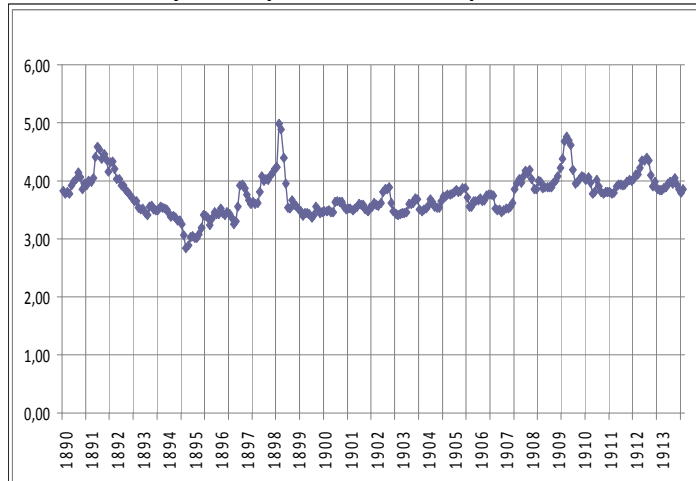


Table 3 : monthly wheat prices on the Liverpool market 1890-1913

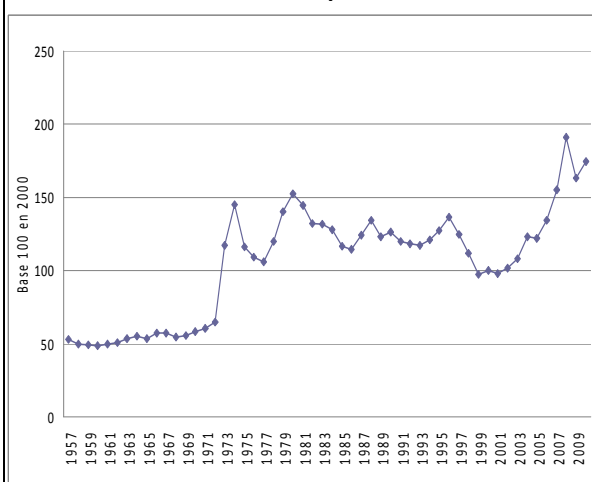


Source : The data used in this box come from David Jacks who produced an amazing compilation of wheat prices in the 19th century (see his internet site <http://www.sfu.ca/~djacks/data/publications/publications.html>)

Box 14 : International Food Price Volatility since WWII

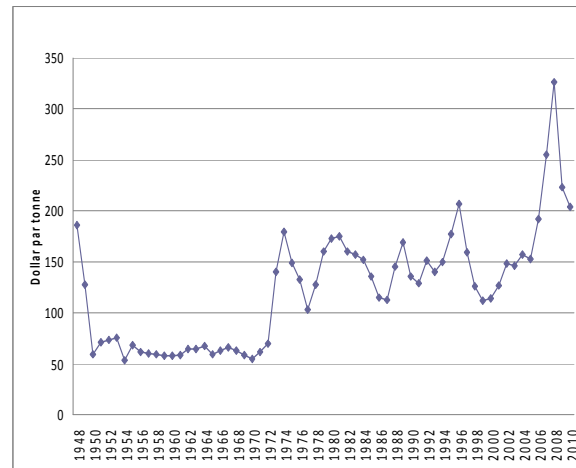
From WWII to the 1980s, food markets were characterized by the omnipresence of governments and a policy norm of domestic-centered food markets. Using different kinds of instruments (caisse de stabilisation, variable levies, export or import quotas, public purchases, food aid, etc.), governments organized an almost complete disconnect between domestic and international prices. Domestic price stability was adopted as an objective worldwide. Foreign trade was subordinated to attaining it. Exports and imports were synonymous with surpluses and deficits that needed to be eliminated to guarantee domestic market equilibrium. From this standpoint, domestic stability was guaranteed by transferring domestic instability to the international market. During this period, international markets operated like canal locks between national markets. They handled the transfer of products without calling into question the level and stability of prices in domestic markets. Despite the residual nature of trade (and despite the teachings of economic analysis), the international prices of most food products displayed marked stability from the end of the 1950s to 1972 (Tables 4 & 5). This is explained by the structuring of the international markets as hierarchic and/or co-operative oligopolies. Indeed, management overseen and centralized at the national foreign trade level gave the country (or nation-state) the status of basic unit on international food product markets. Furthermore, the mastery of foreign trade was accompanied by states' taking control of stocks, that is to say shifting market power from firms to states. In this context, practically all the international markets took on the structure of nation-state oligopolies.

Table 4 : International food price index 1957-2009



Source : IMF

Table 5 : International Wheat Price Index 1948-2010



Source : IMF

Then, a number of cooperation features emerged in these oligopolies during the decade following the Korean War: the FAO Consultative Sub-Committee on Surplus Disposal, international agreements on wheat and coffee, the Food Aid Convention, the GATT regulation on dairy products, and so on. These institutions were usually based on a solidly established hierarchy between countries and the presence of an uncontested leader. The cooperation in product institutions was amply completed by the residual supplier strategies used by this/these dominant country/countries: USA-Canada wheat duopoly, USA for maize, soybean and rice, New Zealand on the milk market, Brazil for coffee, etc. To guarantee international price stability, these countries acted as residual suppliers and adjusted their exports to their competitors' exports and took on the world storage burden.

The early 1970s featured the start of a period of marked price instability on food product markets. This instability first took the form of a series of price leaps affecting all commodities markets one by one. Crises in demand (the oil producing countries, the USSR and China) have often been highlighted to explain this period of price tension. However, the exhaustion of the market leader countries' stabilization capacities does more to explain the large price hikes than sudden import demands. As was shown by subsequent events—in contrast with the alarmist diagnosis of the time—the shortages that occurred were not caused by an

increasing scarcity of global resources but by changes in the policies of the leader countries. The main reason for the low level of world agricultural product stocks at the start of the 1970s was the reversal in the (storage and production) policies of the leader countries that, from the end of the 1960s onwards, refused to cover the entire cost of stabilizing international markets.

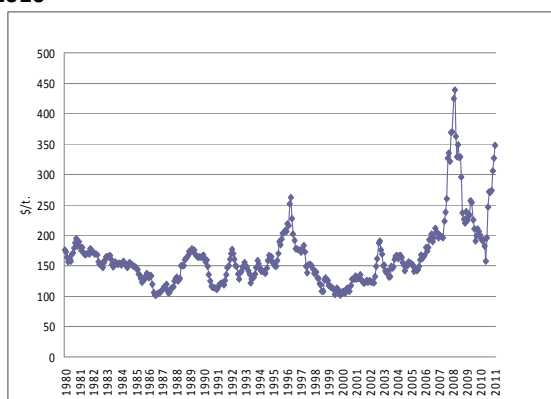
The change in the markets in 1982 (the date of the start of the recession in the United States and the international financial slump) from a situation of shortage to one of surplus—resulting from the fall in import demand—abruptly revealed this lack of a stabilizing mechanism and the disappearance of the safety net that had been provided by the storage policies of the leader countries. At this stage, the oligopolistic structure of the markets was not called into question, but most of the oligopolies were destabilized, whether they concerned tropical or temperate products. The start of the 1980s marked the beginning of fierce competition when new exporters (the European Union and the “New Agricultural Countries” such as Brazil, China, Thailand, etc.) joined the list of suppliers. International prices reflected this new situation immediately. Even though the surpluses were not as substantial as those of the 1960s, prices fell sharply on a scale unequalled since the depression in the 1930s. The fall in international prices came with a fragmentation of international food markets provoked by the differentiation of the price conditions offered by exporting countries. This differentiation obscured the very low level of the prices actually used in the transactions. For commodities such as wheat and coffee, actual prices varied by a factor of between one and two according to the destination.

In developing countries with no financial reserves, the fall in international prices caused the bankruptcy of numerous state marketing boards and triggered the wane of post-WWII state interventionism. For developed countries and their domestic agricultural market systems, the fall automatically resulted in a skyrocketing of the cost of support and revealed the mismatch between the “domestic-centered” model and the excessive involvement in foreign trade.

The opening of the Uruguay Round negotiations in 1985 marked OECD countries’ awareness of the impossibility of continuing with the domestic-centered model. Even though the Uruguay Round negotiations did not come close to achieving the total dismantling of the agricultural support mechanisms in developed countries, the tariffication principle has clearly called into question the disconnect between domestic markets and the international market: while domestic prices remained distinctly higher than international prices, they were now supposed to vary in line with world prices. This revision of agricultural policies negotiated in a multilateral framework took place at the same time as a more rapid, sudden withdrawal in the developing countries that had “adopted” structural adjustment policies. The reduction of import barriers and the closing of state marketing boards were much faster and more radical within this framework. Thus, a clear reunification of the world market (or part of the world market as we shall see) was accomplished from the mid-1980’s to the mid-1990’s.

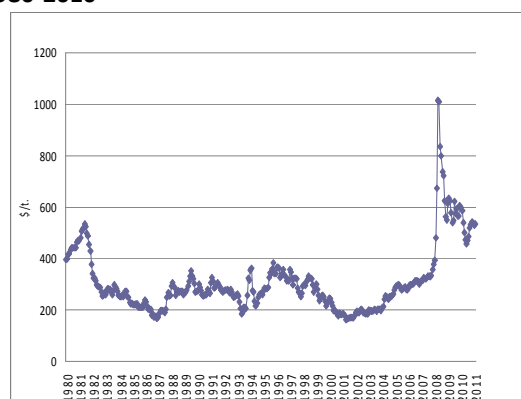
Then, a short period of international price stability began that could be associated with the end of the trade war brought about by the Marrakech agreement. But this stability (Fig. 6), particularly visible in the rice market (Fig. 7), was short-lived. From 2005 on, prices on most of commodities markets started to creep up; they then began to skyrocket in 2007, doubling or trebling within the space of a few months. The price explosion was immediately followed, in mid-2008, by a dramatic fall though they remained higher than they had been before the spike.

Table 6 : Monthly International Wheat Prices 1980-2010



Source : IMF

Table 7 : International Rice Prices (5% FOB Bangkok) 1980-2010

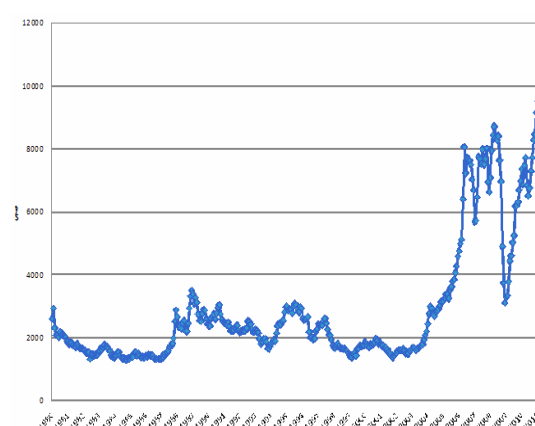


Source : IMF

In addition to its impressive scale, the current international food price volatility has two specificities :

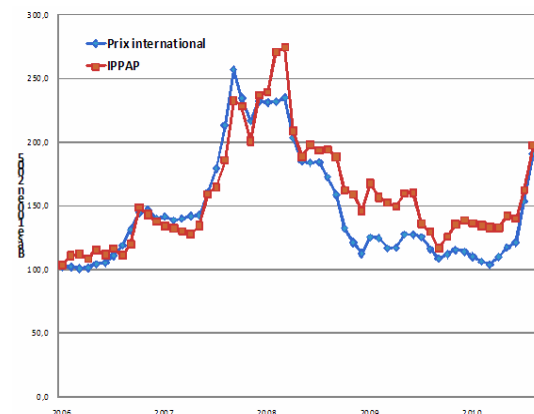
- It is part of a general destabilization of commodities markets, which is frequently illustrated by the oil market but that many other commodities—like copper (Fig. 8)—are also experiencing.
- As a result of liberalization policies, it was transmitted to many countries where farmers had for decades been sheltered from international price volatility. Thus, it was felt by many more actors than the previous periods of volatility. France is a very good illustration of such a country (Fig. 9). It should be noted that some countries, and not just the smallest (China and India for example, Fig. 10 & 11), have kept the disconnect from their domestic markets intact.

Table 8 : International Copper Prices 1980-2010



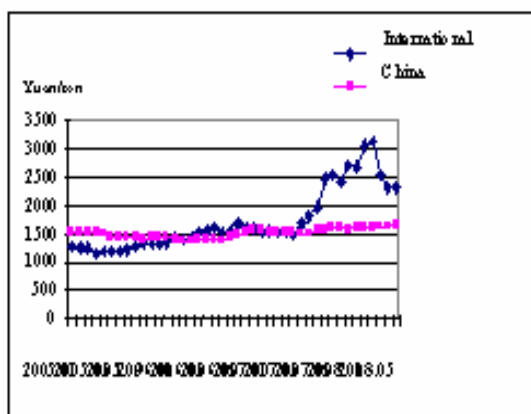
Source : IMF

Table 9 : Wheat Prices on the International Market and France's Domestic Market 2006-2010



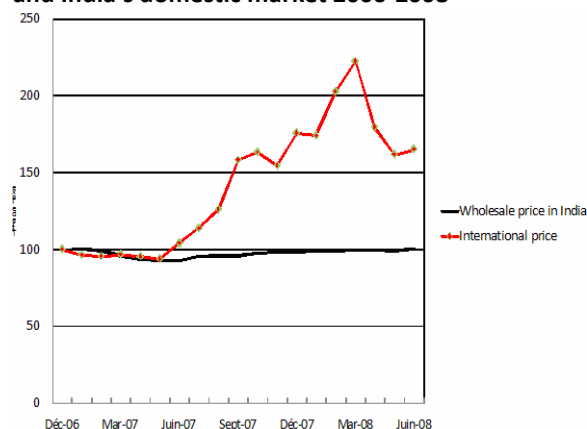
Source : IMF

Table 10 : Wheat Prices on the International Market and China's domestic market 2005-2008



Source : OECD

Table 11 : Wheat Prices on the International Market and India's domestic market 2006-2008



Source : OECD

4.2. What Can the International Community Do?

In order to discuss an agenda for the international community, it may be useful to distinguish between the three main functions of public action:

- the provision of public goods like information in order to improve coordination and decision-making;
- financial aid or transfers (from one country to another); and
- setting, monitoring and enforcing common rules for national policies.

a) The Provision of Public Goods

As far as price instability is concerned, the role of public goods is to allow for better operation of international markets by making them more transparent and by improving the quality of price expectations. Transparency can reduce endogenous instability (speculation, panics, cobweb effects, etc.). Hence, the public good that should be provided by the international community is **information to make the (physical and derivative) markets more transparent**. Speculative bubbles and panic dynamics are fueled by the lack of market transparency. As far as derivatives markets are concerned, the problem mainly affects OTC products. One solution could be to develop OTC standards and widely disseminate aggregated information on OTC activities. Regarding physical markets, some data are already disseminated widely for free by the USDA, the FAO, and the International Grain Council. However, the analyses of these data (provided by private companies) are often expensive. As a result, there is a lack of knowledge on the future evolution of market fundamentals (production forecasts, evolution of the agricultural and commercial policies of the main exporting and importing countries, and other prospective information). This information should be comprehensive enough to allow poor countries to estimate the evolution of import and export parity prices (this means that international prices should be included as well as exchange rates and freight costs). This information could be produced and disseminated by the International Grain

Council (for cereals) and/or by the FAO's Global Information and Early Warning System (both do so partially already). Moreover, many private and public operators, especially in developing countries, do not have a capacity for market intelligence, either because information on international markets is expensive or because they do not have experts able to analyze it. Technical support for national and regional Market Information Systems (MISs) is required in developing countries. MISs will improve private and public stakeholders' expectations and, by so doing, reduce speculation and panic behaviors on both derivative and physical markets (including government behaviors such as export bans).

b) Transfers

Transfers could solve the problems induced by the effect of international price spikes on the currency reserves of some importing countries (rationing of food imports, decrease in the exchange rate). It could also offset the lack of public funds necessary to manage domestic price instability.

Food aid. Food aid is a way to mitigate the effects of price spikes on low-income countries and vulnerable households. This tool refers to food aid in general with its different modalities: distribution of free food rations, cash transfers, targeted subsidies, vouchers, food for work, cash for work, etc. The objective is to allow low-income countries to maintain their import levels and allow poor and vulnerable households to maintain their food consumption levels despite price increases. This tool is, of course, necessary. But, since the Niger crisis of 2005, we know that this tool has proven itself to be insufficient to protect poor households from food insecurity (Michiels & Egg, 2008; Michiels et al., 2008; Blein & Egg, 2009). Moreover, it can cause market distortions in developing countries (food price drops that affect poor farmers).

Technical and financial support to the governments of developing countries to help them to use derivatives markets. The idea is to help the governments of developing countries hedge against price spikes on international markets. This has been proposed many times by experts (Faruquee et al., 1997; Dana et al., 2006; Sarris et al., 2010). Theoretically, it should work. But this tool has serious limitations. First, for some products (like rice), there are no relevant futures markets for hedging. Second, for other products, price hikes remain a basis risk in line with the fact that the price of imported food products is only partially correlated to futures prices (because of differences in quality). In practice, there is only one experience with such an anti-risk policy. In 2005, the government of Malawi bought a call option on maize from a South African bank (indirectly, this option was related to the SAFEX). The experience was presented as a success story: it allowed Malawi to import maize at a relatively low price compared to Zambia. However, in spite of its "success," this experience has never been implemented again by either Malawi or any other country. This experience also showed that strong public sector support is a necessary condition to allow governments to use derivatives markets: the government of Malawi received strong technical support from the World Bank and the cost of the call option was covered by DFID (Galtier et al., 2009, pg. 124).

Credit facilities. Credit from private stakeholders is not relevant in this case: countries are in deep trouble and need to receive credit very quickly. So, some public sector support is necessary. The IMF proposes two types of facilities: the Compensatory Financing Facility (CFF) and the Exogenous Shocks Facility (ESF). The first one (CFF) has

not been used since 2000 because of the very strict conditions for its use. The second one was used by a few countries in 2008 to mitigate the effects of international price spikes on oil and food products: Ethiopia, Kenya, Kirghizstan, Malawi, Mozambique and Senegal (FAO, 2010). According to some experts, these facilities are not sufficient and other credit facilities are necessary. For instance, Sarris (2009) proposed developing a Food Import Financing Facility (FIFF).

A public mechanism to stabilize the food import bills of specific developing countries (STABIMP). The idea is to offset the rise in food bills due to international price spikes. The STABEX negotiated by the EU and ACP countries could be its model. This tool (which could be called STABIMP) should target low-income and/or countries highly dependant on food imports.

An international fund to finance national or regional price stabilization policies in developing countries. To apply to this fund, the countries should comply with some governance requirements (a code of practices to guarantee the transparency and predictability of interventions).

Further research is needed to compare the performance of these tools. To a certain extent, they are complementary. Given the reluctance to use and the difficulty of using hedging tools, it is better not to rely on them alone. Moreover, an instrument that can help countries ex post (in the case of a price spike on the international market that generates a balance of payment problem) is needed. Therefore, there is a need for credit facilities or a STABIMP. These tools can be complementary if the countries that can apply to each of them are different. An international fund also seems necessary to allow poor developing countries to develop stabilization policies.

Whatever the tool, strong public sector support is needed, even for private tools. Hedging tools are B-instruments (theoretically private). But, as shown by the Malawian experience, strong public sector support (both technical and financial) is necessary to stimulate its use. Credit facilities are also B-instruments, but for countries in a difficult situation with regard to their balance of payments, the tools should be managed by a public institution (such as the IMF).

c) Setting, Monitoring and Enforcing Common Rules

The role of common rules is to reduce instability on international markets (i) by restricting destabilizing behaviors by states and private operators and/or (ii) by developing specific collective interventions to stabilize prices.

In the first category, we have:

Derivatives Market Regulation. Many measures can be implemented, the main ones being to establish position limits for non-commercial operators and tax derivatives transactions (a Tobin type tax). The first measure may seem better as it would not affect commercial operators (those who are in situation to use derivatives to hedge price risks) directly. It has also already been implemented (by the Chicago Board of Trade from the 1930s to the 1990s) and has proved to be effective to contain over-speculation and reduce the probability of bubbles. Other measures (linked more to the organization of derivatives markets) are also needed. For instance, it may be necessary to set up a market authority (when one does not exist) and harmonize sanctions for market abuses.

Regulations on the use of food products to produce biofuels (flexible biofuel mandates). Theoretically, the development of biofuels could have a stabilizing effect on

cereals prices. Indeed, it could make the demand for cereals more elastic (more sensitive to changes in cereal prices). At the same time, however, energy price spikes (fuel, oil, etc.) can generate cereal price spikes. According to some experts, this is what happened in 2007-2008 (Christiaensen, 2009). In practice, the biofuel cereal supply is not flexible but bound by “biofuel mandates”. Fixed mandates eliminate the stabilizing effect of biofuels in the case of a price shock on the cereal market. But the mandates can act as a buffer on the transmission of price spikes from the energy market to the cereal market (Wright, 2009). For this to happen, the mandates must be adjusted to reduce the flow of cereals used for biofuels when cereal prices rise. This is already partially the case in Brazil. In the USA, a 2008 law makes it possible to modify the mandates. Generally speaking, since the biofuel industry is subsidized, it is possible for governments to control it. The technical feasibility of variable biofuels mandates should be investigated because an unstable supply could endanger the sustainability of the biofuel industry.

Creating an international clearing house (International Grain Clearing Arrangement or IGCA). The idea is to secure the enforcement of contracts on the physical market (between exporters and importers). The idea is as follows (Sarris, 2009): at the international level, there is no legal body with the jurisdiction to guarantee that contracts will be enforced. The only sources of confidence between sellers and buyers are (i) their desire to maintain their reputations, and (ii) the clearing houses of commodity exchanges. These clearing houses have two limitations. First, there is a basis risk if the product needed by an operator is only partially correlated to the exchange’s prices (because of transport costs and/or because of differences in quality). Second, the clearing houses only guarantee financial compensation, not the physical delivery of the product. The goal of the IGCA would precisely be to overcome these limits. The IGCA would proceed by developing links between existing commodity exchanges and their respective clearing houses. In order to guarantee that physical supplies at various exchanges are available to execute international contracts, some of the financial reserves of the clearing houses that would be members of the IGCA could be transformed into physical stocks, for instance by holding warehouse receipts. According to Sarris (2009), the required level of stock at any given time would not be more than 1 million tons of grain equivalent, which means that the amount of money managed would not exceed US\$200 million. This tool aims to reduce private speculation on the physical market. However, three limits may reduce the scope of the IGCA. First, if the governments of the countries where the warehouse receipts systems are based implement export bans, this could make the physical release of stocks impossible. This problem can be managed by specifying that export bans on staple food products cannot apply to the IGCA’s holdings. Second, appropriate exchanges must exist in different regions of the world. Third, most food commodity importers would need to hedge their purchases in these exchanges.

Regulations on exports restrictions. Currently, countries exporting food products have the right to restrict their exports as much as they want, including banning exports completely as many did during the 2007-2008 crisis. This is unacceptable because this type of behavior pushes up international prices. Some experts have proposed forbidding export bans and other measures aiming to restrict exports (Lin, 2008). But this solution is not acceptable to exporting countries as the international high-level summit held at

the FAO in Rome in June 2008 showed. Indeed, they need to protect their populations from food price spikes on the international market. The solution seems to be to allow countries restrict to their imports but only in order to maintain sufficient availability to feed their populations. This means forbidding export bans at the WTO but allowing export quotas with the amount of the quota indexed on the needs of the population (consumption – production – stocks). This type of measure could take advantage of the experience of how food aid amounts are decided in the countries subject to climate crises. Based on a calculation of the estimated food balance that determines a country's degree of food deficit, the volume of imported food aid is estimated. Following the same logic, the minimum volume that should remain available in the country can be estimated. Of course, the excess should not be banned from export.

Regulations on land grabbing. Following the 2008 crisis, many private stakeholders and states purchased or rented land in other countries to secure their own supplies. This kind of behavior can generate food security problems in the countries where the land is located. It can also narrow the international market considerably and, as a result, more it more unstable. Some international rules on these practices are required.

Generally speaking, these rules will reduce some sources of price instability. One alternative option (but not the only option) is to develop collective interventions to fight against these sources. In this second category, we have:

International public grain stocks. Empirically, cereal price spikes on the international market have always occurred when world stocks were very low (Tables 10 to 12). This is consistent with the idea that physical stocks are a solution for all sources of instability. They can buffer the effects of bad harvests, mitigate the cobweb effect, and discourage speculative bubbles and panic movements. This means that maintaining sufficient level of stocks is a good way to prevent price spikes on international markets.

The problem is that private stocks are sub-optimal because storage is a risky activity. In order to show that private storage is optimal, Williams & Wright (1991) had to hypothesize that farmers and traders were risk neutral. This hypothesis may be realistic for US economic agents because they have the opportunity to hedge price-risk on futures markets, but it is not realistic for many developing countries. This means that some kind of public storage is necessary to attain stock levels that are high enough to prevent price spikes.

Table 12 :International Corn Prices and Stocks

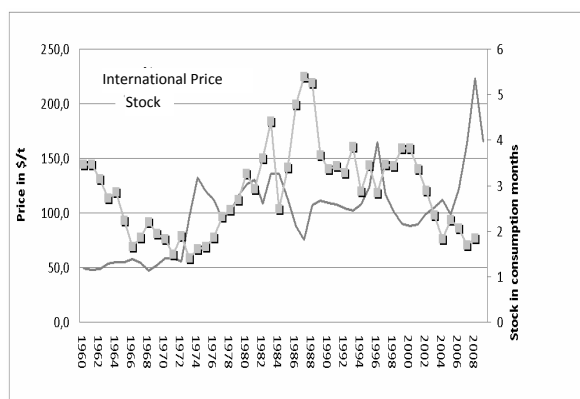


Table 13 : International Wheat Prices and Stocks 1960-2008

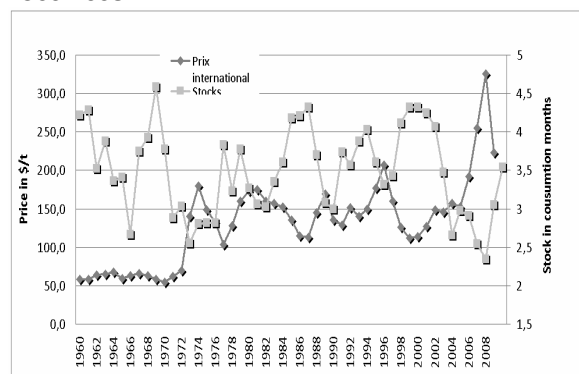
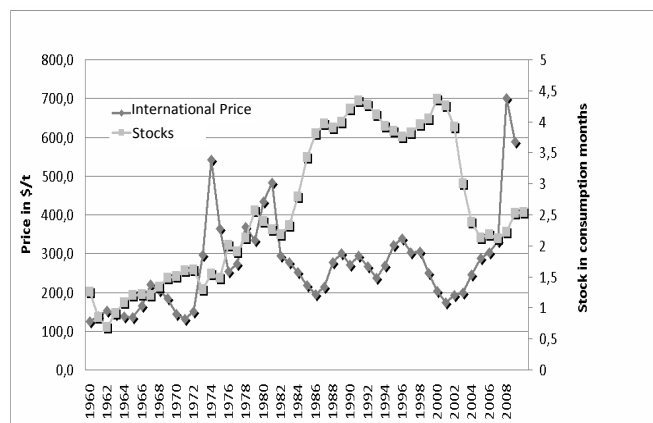


Table 14: International Rice Prices and Stocks 1960-2008



However, governments may lack sufficient incentive to develop public stocks. Most of the time, countries that maintained high level of public stocks did so to attain the objectives of their internal agricultural policies, not to stabilize international markets. Yet, many countries (especially the USA, the UE and China) have been changing their agricultural policies for the last 20 years in ways that imply much lower stock levels (Mitchell & Le Vallée, 2005).

As a result, an international agreement is necessary to share the burden of storage (Lin, 2008). Otherwise, each country would be encouraged to act as a free rider, trying to benefit from the storage of other countries without contributing itself. There are two ways of organizing such burden sharing. The “hard version” is to develop international public stocks for cereals (and maybe other food products). This can be done using national storage facilities. In this case, part of the national public stock is managed by an international organization. The “soft version” is an agreement in which each country commits itself to maintaining at least a level of stock sufficient to cover x months of its own consumption. Part of this stock should be held by public agents (since private stakeholders may have an incentive to amplify price spikes through speculative activities).

This type of measure is subject to two criticisms. The first criticism relates to the high cost of stocks. Indeed, immobilizing large quantities of food products has high technical and financial costs. Nevertheless, if doing so makes it possible to avoid price spikes on the international market, the benefits probably outweigh the costs. The second criticism deals with the difficulties involved in organizing the governance of international stocks. This difficulty is said to have been illustrated by International Commodity Agreements or ICAs (Gilbert 1996). These ICAs are said to have encountered all sorts of problems, with the main problem being the development of plethoric stocks (cocoa) and the breaking of agreements following disagreements between exporter and importer countries (coffee). It is important, however, to discuss the relevance of these criticisms. Indeed, the ICAs aim first to maintain the prices rather than stabilize them, and most of the problems they encountered come from this. The ICA experience does not conclusively prove that it would be impossible to manage an international public stock whose aim was limited to price stabilization. Of course, the price band that determines public stock

purchases and sales would need to be updated regularly in order to follow long-term trends in international prices.

International land reserves. Sarris proposed the constitution of land reserves managed by the international community. These land reserves would be cultivated only in case of international price spikes. If it is less expensive to manage fallow land than deal with physical stocks, this is a way of lowering the cost of price stabilization. However, there are two inconveniences. First, beginning cultivation takes a certain amount of time and cannot offset a climate accident. Second, this measure may generate a cobweb effect: high prices may encourage cultivation of the reserves, leading to production excesses the following year pushing down prices. In this case, international land reserves could increase international price instability.

An international virtual stock. The idea is to be able to counter-speculate on derivatives markets in the case of speculative bubbles (Von Braun & Torero, 2008). This proposal has been highly criticized. Indeed, it is difficult to implement. There are two reasons for this. First, it is difficult (or even impossible) to estimate the price band that separates “normal” prices from bubbles. Second, this virtual stock may be subject to speculative attacks. Accordingly, the stock should be large enough to prevent such speculative attacks. This implies very expensive stocks. Even with very large stocks, this instrument is still very risky: the probability of losing a large amount of money is high. This makes it difficult to mobilize the international community. Last but not least, the same result (reducing speculative bubbles) can be attained in a more effective, less costly and less risky way by regulating derivatives markets.

To summarize, two categories of tools should be implemented. The first category consists of ex ante tools. Their aim is to reduce some sources of price instability by restricting destabilizing behaviors on the part of states and private operators. The tools in the second category are ex post tools. They are ways of lessening the destabilizing effects of the different sources. Both categories complement each other.

Moreover it should be noticed that some tools are generic: they can have a stabilizing effect on many sources of instability. This is especially the case of international public tools (physical stocks) that are a way of fighting climate shocks, cobweb effects, speculation and so on. Other tools are more specific to some sources of instability, or can even reduce some sources of instability while increasing other sources (for instance, international land reserves may amplify the cobweb dynamic). Hence, we have two approaches: developing a wide range of specific tools (to cover most of the sources of instability), and developing international public stocks (or, at least, an agreement on sharing the burden of storage among countries). These two approaches can be complementary.

Last but not least, it should be noted that national and international initiatives to manage international price instability are complementary but may also be contradictory. Indeed, reducing international price instability may sometimes be achieved to the detriment of countries’ capacity to protect themselves from it (and vice-versa).

Both strategies are necessary, however. International price instability needs to be lowered in order to avoid the development of widespread protectionism (self-sufficiency strategies) that would lead to inefficient resource allocation and drive up the average price of food. Moreover, such protectionism would narrow the international market and, by so doing, make it more vulnerable to climate shocks (that increase price

instability). This phenomenon has been noted since 2008 with the strong rise in international land grabbing. It is also necessary to reduce the shortsighted strategies developed by countries to protect themselves from international instability. Because these strategies (especially export bans) increase international instability, their scope should be reduced.

At the same time, there is also a need to allow the countries to control their import and export flows. Indeed, stabilizing international prices is not enough to stabilize the price of imported food products as these prices also depend on exchange rates and freight costs. Moreover, controlling imports and exports can also be useful in solving domestic instability due to internal causes (such as bad harvests). It is a much less costly alternative to using large national public stocks.

4.3. Elements to Take into Account when Designing an International Governance System to Manage Price Instability

All the available or possible instruments to manage price instability require international governance. Many institutions already exist but they do not always have a mandate to take charge of these instruments.

In order to design international governance, it can be useful to distinguish between the three main functions of this governance:

- The first function is to provide **public goods** like information and knowledge in order to improve coordination and decision. HLPE has been commissioned by CFS to provide a conceptual framework to manage price instability and assess different strategies and instruments. This will be done in 2011 but will not become a permanent analysis capacity like the intelligence unit proposed by Von Braun & Torero. Permanent information flows and updated diagnoses are needed and could be provided by International Commodities Bodies.
- The second function is to manage financial aid or **transfers** from one country to another. This means determining which countries would provide, which countries would receive, what amounts would be involved, and what implementation conditions would be required. The OECD is an example of the type of institution that could fulfill this function.
- The third function is to set, monitor and enforce common **rules** for national policies. These rules could apply to international trade, the regulation of derivatives markets, land grabbing, and the use of food products to produce biofuels. Ad hoc mechanisms could be designed to enforce these various rules. Another option would be to rely on the WTO's Dispute Settlement Body (as Von Braun and Torero have proposed for the enforcement of an international virtual stock, for instance).

Finally, in any international institution, countries are organized into geographic or economic groups. These groups are not always relevant to how international markets affect their food security. One solution could be to organize country groups based on shared interests from this standpoint (for example: food insecure countries that are highly dependent of international markets; large food-exporter countries, etc.). These groups, and particularly of the group made up of the more vulnerable countries, could defend their position in several international forums.

Conclusion

Agricultural price volatility is problematic.

Price volatility refers to erratic fluctuations, variations of such magnitude and frequency that instead of sending signals to agents as market fluctuations do, they exceed producers' and consumers' capacity to adapt (OECD, 1982).

Excessive fluctuations in agricultural prices harms:

- vulnerable consumers because they threaten consumers' food security (in the case of price hikes);
- farmers because they make the profitability of investments extremely variable, limiting incentives to intensify production and causing bankruptcies (when prices collapse); and
- national economies, because they threaten their fragile equilibriums. Indeed, for the poorest nations, agriculture's preponderant role as a source of income and the proportion of household spending devoted to agricultural products generate a risk likely to spread to the entire economy (systemic risk).

Agricultural price variations are not harmful in and of themselves: the problem is volatility. Indeed, price variations are, in principle, signals that enable actors to adapt their behaviors to the state of market fundamentals. In the case of erratic fluctuations (see the definition of volatility above), these signals are obscured, which causes agents to allocate their resources sub-optimally, and sometimes even causes panics that amplify the initial imbalances. Volatility must be viewed over different lapses of time depending on the actors concerned.

The problem of price volatility cannot be resolved by treating its symptoms alone; its causes must also be cured.

Until now, the recommended approach for tackling excessive price volatility has sought to limit its negative effects:

- by promoting private mechanisms allowing different economic operators (producers, traders, para-state offices, etc.) to protect themselves from price risks (futures contracts, insurance);
- by providing government support for vulnerable households (safety nets: consumption subsidies, food grants, monetary transfers); and
- by using macro-instruments (STABEX, IMF facilities) to provide ex-post support to governments.

This approach aiming to cure only the symptoms has, however, shown its limitations. Private risk management instruments are not very widespread, notably in developing

countries, and safety nets, in addition to being potentially very costly, have generally not been able to offset food security problems when prices skyrocket.

The insufficient and inoperative nature of measures aiming only to limit the negative effects of price volatility calls for the joint implementation of mechanisms aiming to limit price volatility by acting directly on its causes.

The causes of price volatility are multiple and intertwined.

There are numerous causes of agricultural price volatility. For agricultural price volatility on the domestic level, one can distinguish between:

- exogenous causes, mostly natural in origin (climate events, pests), that have a strong impact on agricultural production levels (notably in developing countries where intensification is low), and over which agricultural market actors have little influence;
- endogenous causes, that is to say causes within agricultural markets themselves, which are linked to (i) the behaviors of actors—producers, intermediaries, consumers, governments—who are in a situation of uncertainty, (ii) to the specific characteristics of these products (production times, cobweb effects, land rents, storage and transport costs) on the supply side as well as (iii) the characteristics of the demand (not very reactive because the product is a staple good, subject to export restrictions so as to ensure domestic supply);
- causes imported from other contexts (international price volatility) or other sectors over which agricultural market actors have little to no influence (exchange rate variations, changes in oil prices, the shift of investments from classic financial markets to agricultural markets, etc.).

The causes of agricultural price volatility, described here for domestic markets, also have an effect on international agricultural commodities markets. Thus, while international price volatility is a cause of imported volatility from the standpoint of countries or regions, it too has endogenous and exogenous causes.

These causes are intertwined and mutually reinforce each other during feverish periods. While some causes, notably exogenous causes, may be the source of a price hike, other causes can amplify this hike. For example, the sharp price hike in 2008 on the physical and financial markets of many countries seems to have been the result of a combination of several factors listed above (increased demand, natural hazards and a temporary supply deficit, a low level of stocks, an oil price spike, export restrictions, financialization on agricultural commodities derivatives markets, rising uncertainties).

The causes of price volatility are likely to have a stronger effect in the future.

The interplay of the fundamentals of the agricultural supply and the agrifood demand makes it so that agricultural price volatility is likely to be greater in the future. Indeed, food markets will remain tense because of rapid growth in demand (population growth, urbanization, the growth of agrofuel) and slower growth in the agricultural supply

(productivity reserves to exploit under the constraints of more costly fossil energy and respect for the environment). In short, the multiple causes mentioned above are likely to accentuate agricultural price volatility in the future.

- Exogenous causes. According to the Intergovernmental Panel on Climate Change (IPCC), climate change will very probably lead to the multiplication and aggravation of natural weather hazards.
- Endogenous causes (within the market). It is possible that the reduction in public stocks, added to the growing financialization of futures markets for foodstuffs will make price forecasts more difficult for the actors in these markets and, ultimately, lead to greater price volatility.
- Imported causes. Heightened trade interdependency (country accessibility, smaller transfer costs) could lead to greater sensitivity of domestic prices to the volatility of international prices. International price volatility could itself be increased by the fact that the countries that are influential in international trade are becoming increasingly sensitive to climate risks (overlapping of exogenous and imported causes).
- Causes imported from other sectors. The stronger link between the prices of food and energy products has increased the risk that instability in the oil and natural gas markets will be transferred to food products. Similarly, there is the risk that the growing financialization of agricultural markets and the fluctuations in exchange rates may exacerbate agricultural price volatility.

Treating the causes of price volatility implies public intervention in conjunction with private mechanisms (the market alone is not enough).

To contain agricultural price volatility, the choice of instruments should be made in function of the causes of volatility.

For instance, in theory, the market can be used to limit price volatility in the case of natural instability. The development of commercial trade is justified by the possibility of relying on the “law of large numbers” since deficits from one zone can be offset by surpluses in another zone. In this case, economic operators can use insurance-type instruments to cover their risks. Public intervention will nevertheless be necessary to compensate for market operation difficulties.

In the case of endogenous instability, however, only public regulatory intervention is an effective way to lessen uncertainty and its unwanted effects (control of foreign trade, stock management). Taking care of sufficient and stable volume supplies and stock is as important as price stability.

In practice, however, it is impossible to distinguish exactly what proportion of price volatility comes from natural, endogenous or imported causes. Public intervention aiming directly to limit agricultural price volatility is therefore necessary.

In all cases, to limit agricultural price volatility, it would be good to seek to improve agricultural market operations through public investments (infrastructures, information

systems) and through recourse to private mechanisms enabling better matching of supply to demand over space and time (private storage, warrantage, etc.).

Acting on the international scale is necessary but insufficient (one must also intervene in domestic and regional markets).

Several points argue strongly in favor of envisaging intervention on the international scale even though price instability is far from limited to this scale. Action can be taken on both its effects and causes.

Although the majority of the population in developing countries feed themselves with local products, rising prices on international markets have a serious effect on urban populations in heavily importing countries. In addition, although the relative stability of agricultural prices on international markets prior to 2007 did not have a stabilizing effect on the price of local products in domestic markets, the 2008 crisis showed that a sharp price spike could destabilize domestic markets. Some instruments, such as special safeguard mechanisms or the removal of import taxes, are used by vulnerable countries to protect themselves. They are, however, relatively constrained by the international trade rules established at the WTO, notably as regards tariff instruments. Even though LDCs are rarely brought before the WTO's Dispute Settlement Body (DSB), these rules should be relaxed for them. Systems for insuring against strong price hikes for importing countries are being studied, but the margin for action provided by these instruments drops with repeated shocks.

It therefore seems necessary to find the means to act on the causes of excessive price instability in these markets rather than merely attempt to offset their effects after the fact.

Several possibilities can be studied:

- Improve transparency of and access to market information, both in regard to stock levels and the various operators' positions equally.
- Foster the creation of public and/or private stocks in order to maintain a stock-to-consumption ratio that would reassure markets, and coordinate international actions in this area. These questions must be analyzed in greater detail.
- Supervise export restrictions. Export restrictions are legitimate tools for exporting countries that want to protect their populations from sharp price hikes. However, in a tense market, they help destabilize the market and accentuate price hikes. International coordination and the setting of rules on these measures are desirable; their implementation conditions require in-depth analysis.
- Harmonize and regulate commodity derivatives markets so that they best reflect physical fundamentals. The role and scope of excessive speculation in agricultural price volatility are highly controversial, especially since these markets have become very complex and opaque. Nevertheless, it seems that a consensus is emerging on the greater correlation between commodities derivatives following market financialization and on the need for some degree of regulation in derivatives

markets. The regulation movements underway in the United States and the European Union raise the question of global harmonization of regulations for these markets.

Once again, intervening in international markets will not be enough given the challenge of stabilizing the price of local products on domestic markets.

Intervening in domestic and regional markets implies mobilizing a combination of instruments.

The analysis of various national experiments revealed a certain number of cases in which intervention lowered price volatility and made decisive progress in the fight against poverty and food insecurity. In these cases, two price regulation instruments were used to keep prices within a dynamic band:

- buffer stock management (smoothing over time), and
- control of one's foreign trade (smoothing over space).

These instruments to regulate the operation of agricultural markets directly must not be envisaged in isolation, but as integral parts of an overall institutional environment, in addition to measures setting an ambitious overall policy for rural areas, and in collaboration with the private sphere. In all cases:

- The provision of public goods (infrastructures, transportation, communications) is necessary to facilitate market operations and create an environment that is conducive to the development of private activities.
- By lowering uncertainty and creating a conducive economic environment, direct public action on markets should facilitate the operation and development of private risk-coverage instruments.
- "Safety net" mechanisms aiming to ensure direct transfers to the most vulnerable households are necessary.

Thus, a combination of instruments is necessary. The instruments must notably act on both the causes and effects of agricultural price volatility, mobilize both public and private actors, and intervene on the national and international levels.

The implementation conditions of market regulation instruments are crucial.

The case studies conducted showed that certain conditions are crucial to the capacity of the instruments set up to limit agricultural price volatility effectively.

- Policy decisions must be based on solid expertise: in successful experiences, the intervention relied on a dynamic price band system based on international prices. It is necessary to adapt intervention levels constantly and avoid over-production.
- Managing intervention costs (and possible excess costs in the case of strong incentive measures) is a crucial consideration.

Price stabilization policy implementation conditions are decisive for these policies' capacity to limit price instability. Indeed, the case studies revealed situations in which policies aiming to limit price volatility turned out to be ineffective (no reduction in price volatility) or harmful (increased volatility).

Comparative analysis of the case studies showed that, in order to avoid these harmful effects, the government must:

- have sufficient access to the financial resources necessary to implement the announced policies;
- be able to monitor compliance with the policies set up by minimizing avoidance strategies; and
- be able to ensure that the policies set up are predictable so as to avoid crowding-out effects.

These three conditions (financial capacity, enforcement capacity, and predictability) depend on the capacity of the government (or, when appropriate, the public authorities of regional unions) to set up policies effectively and transparently.

One way to improve policy effectiveness and predictability is to create structures to foster consultation and negotiation between public and private actors. This must be accompanied by capacity-building programs so as to ensure that each type of actor has the ability to defend their interests (asymmetry problems).

Some potential lines of action deserve further study.

Analysis of national experience with lowering agricultural price volatility revealed a range of points that require further analysis.

- Reflection—unique to each nation and based on consultation among actors—on what constitutes “excessive” agricultural price volatility is necessary. When should price volatility be seen as abnormal, as socially unacceptable? This will make it possible to determine intervention levels.
- The cost of agricultural price regulation instruments is often put forth as an argument in favor of no intervention, notably when it comes to public stocks. However, few studies provide information on the benefits linked to the existence of these stocks: cost-benefit analysis must be developed for the various possible instruments. Consideration of all the inter-related factors in the economy calls strongly for the production of detailed analyses, and modeling would then make it possible to clarify the assumptions as to how the economy operates and synthesize the results.
- Analysis has revealed the importance of public and private partnerships in regulating agricultural prices. The analysis of these partnerships must be continued, notably in line with information dissemination (improving access to information so as to limit anticipation errors) and stock management (designing contractual frameworks to work with private operators to minimize the cost of public storage and crowding-out effects).

- Analysis has shown that, when prices skyrocket, the countries used a combination of border measures and buffer stock management. It is necessary to adjust WTO rules to encourage countries—particularly the poorest countries—to implement ambitious agricultural policies to fight food insecurity and poverty (policy space).
- The regulatory framework for financial markets—especially agricultural commodity derivatives markets—must be studied so as to define mechanisms that help limit speculative bubbles.
- International coordination and the setting of rules are desirable so as to improve transparency and available information, particularly on stocks, ensure the preservation of a stock-to-consumption ratio able to reassure markets, and provide guidance for export restriction measures. Their implementation conditions require in-depth analysis.
- It would be good to re-examine the complex question of the feasibility of levying extremely low taxes on transactions to both discourage excessive speculation and help the poorest countries finance their agricultural policies.

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Appendix

Appendix 1. Countries, products and periods studied

	Thailand	India	Indonesia	Guinea	Burkina	Madagascar	Mali	Kenya	Zambia	Malawi	USA	Canada	EU	Brazil
Products	Rice	Wheat rice	Rice	Potatoes	Cotton	Rice	Rice	Maize	Maize	Maize	Maize	All agricultural products		
Periods	1950-2009	1947-2008	1968-2002	1992-2009	1971-2009	1973-2009	2004-2009	1930-2009	1930-2009	1947-2008	1929-2010	1944-2009	1957-2009	2002-2010

Appendix 2. Pursued policies

		Thailand	India	Indonesia	Guinea	Burkina	Madagascar	Mali	Kenya	Zambia	Malawi	USA	Canada	EU	Brazil
Frontiers measures	Import control			X	X		X	X	X	X	X				
	Export control	X	X				X	X			X	X	X	X	
Domestic measures	Buffer stock	X	X	X					X	X	X	X		X	
	Input subsidies	X	X	X	X	X	X	X		X	X	X	X	X	
	Harvest credit	X					X								
	risk mitigation fund					X									
	Security stock	X						X	X	X					X
	Consumption subsidies		X			X	X			X		X		X	X

Part B

International Seminar 1st December,
Foreign Affairs Ministry

1. Managing Food Price Volatility : Workshop Minutes

Francoise Gérard and Arlène Alpha

*The aim of this workshop was to present the study “**Managing Food Price Volatility for Food Security and Development**”, produced by GREMA with the support of the Ministry of Foreign and European Affairs, the Ministry of Food, Agriculture and Fishing, the Ministry of the Economy, Industry and Employment, and the Agence Française de Développement, and to discuss this report with experts from different backgrounds (researchers, international organizations, farmers’ organizations, etc.). The workshop was attended by approximately one hundred participants.*

Morning Session

Opening: In his speech, Mr. Thiébaud from the MAEE reminded the audience that this study was produced in the context of the French presidency of the G20, and that fighting price volatility was one of the priorities of the French presidency.

- **Presentation of the Study, by Françoise Gérard, CIRAD**

The presentation of the study made it possible to go over its context, objectives and main conclusions. With the 2008 crisis, operators were suddenly reminded of price instability, which is inherent in agricultural product markets; and current market tensions have sharpened the feeling that instability will only increase in the years to come. Experts now agree that there is a conjunction between two types of instability in agricultural markets, and that these instabilities are of different natures and, accordingly, respond to different remedies:

- Some price instability is caused by the dependency of yields on natural conditions, a characteristic of agricultural production. These fluctuations are attenuated in a global market that is self-regulated by trade, particularly when transfer costs between markets are low. This reasoning is the basis for the negotiations on trade liberalization (WTO).
- However, a second source of price volatility is also at work. It is linked to projection errors by farmers, traders and speculators, which are much more

frequent than for any other type of production precisely because of the multiple hazards affecting production levels and giving considerable importance to information enabling projections in price formation. Habitually, a price rise indicates increased demand and is a signal to producers, who have every interest in investing. However, in the case of agricultural products, a price rise can come solely from a poor harvest. In this case, the increase in production by farmers causes prices to drop, destabilizing the market. The phenomenon is the same with traders and speculators who manage the transfer of goods in time and space. It is found on markets at all levels (local, national, regional, international), and is a characteristic shared with financial and commodities markets. Unlike the first type of fluctuations, they are not attenuated by the size of the market: because of the statistical characteristics of this series (scale invariance), shocks are not diluted, they are cumulative and synchronize themselves!

This second type of instability, generated by projection errors, is responsible for a large proportion of price instability. It is a market failure because the market is no longer able to coordinate individual decisions based on the transmission of an adequate price signal to agents. It justifies direct market intervention. Intervention is, however, not issue-free, and it is important to remember that the liberalization undertaken for a quarter century has been justified by the avoidance of the costs and unwanted effects of public intervention, after a quarter century of intervention with mixed results despite considerable resources.

This is why, beyond theoretical analysis, this study emphasized a precise study of experiments undertaken in different contexts (historical, economic, geographic, institutional) and on different scales (local, national, regional, international) so as to determine the invariances necessary for effective recommendations.

The following principles can be deduced from the study: a combination of instruments must be set up; and the policy followed must be legitimate (and therefore negotiated) and credible (which implies access to considerable expertise and financial resources as well as to institutional capabilities that make it possible to ensure contracts are followed, avoid harmful rent-seeking behaviors, and fight corruption). It is necessary to ensure that each type of actor has the capacity to defend their interests and represent themselves in each consultation body. Undeniably, the process is costly in the short-term, but price stabilization—when it is well done and avoids in particular the rut related to over-production—allows for remarkable progress in the area of food security and poverty alleviation. This progress is, however, progressive and cannot be clearly felt in the short term, which intensifies the difficulties associated with these policies.

When it comes to international bodies, the most important thing is to encourage the poorest countries to set up ambitious agricultural policies that target poverty alleviation. Historical analysis can clarify the decisive role played by large international organizations' public positions in the local definition of economic policy. A shift in

discourse that draws the lessons from the past is necessary. This shift must be accompanied by resources and innovative financing methods.

- **Presentation of the Outcome of the November 29-30 Workshop, by Peter Timmer, Harvard**

The speaker, a professor emeritus from Harvard, is probably one of the best-known experts in the world on this subject. He first emphasized the quality of the analysis by the team and the summary paper, as well as the richness of the discussions during the workshop.

He then underscored the destructive nature of price instability for food security. Price hikes are particularly disadvantageous for consumers while price drops affect producers, making price instability a true hindrance for investment and thus modernization. Above all, it is a major roadblock on the path to growth and poverty alleviation.

To fight price instability, it is important to determine which level of instability is the problem and what type of actors are concerned by it. Another key point is the type of product concerned, its role in consumption, the country's position as importer or exporter, and its unique characteristics. Border instruments, buffer stocks and the regulation of international financial markets are the primary tools available to countries to manage the problem. Setting up these policies is complex and costly in the short term, whereas the benefits appear only over the long term; they must be based on exemplary technical analysis that is continuously updated to reflect changes in the context. On the international level, all negotiations that make it possible to improve market operation and information are useful.

In short, fighting instability requires different forms of action in function of the context, and is a difficult task but **countries must be encouraged to fight instability rather than discouraged from doing so**. It is also useful to distinguish between the general goal of price stabilization and combating emergency situations. The ultimate goal of the first is to minimize the occurrence of the second and lessen the cost of such situations.

Panel of Four Experts from the Academic Sphere:

What are the main sources of price instability? What are the primary reasons for the success or failure of public interventions? What can be done on the international level?

- Philip Abbott is a Professor at Purdue University (USA); he has recently written a comprehensive report on volatility and national stabilization initiatives for the OECD.

During his speech,

- he addressed the causes and consequences of the sharp rise in international commodity prices, notably specifying that the current peak period was longer

than peaks had been in the past, and that it may have been generated by new as well as old factors. He emphasized the importance of stocks in price changes, observing that persistent biofuels demand means that expected carry-out stocks remain low even after several excellent years of agricultural production, leaving markets vulnerable as current weather events occur. If there is a role for speculation it is that positions taken reflect inflationary expectations, for which public market intervention in grain markets are not very relevant; and

- he insisted that national price stabilization initiatives generate instability on the international level, which calls for caution when intervening. Reliance on international trade to stabilize domestic markets, even partially, will require that major exporters as well as large but self-sufficient markets (e.g. China and India) do not close their borders. The isolationist policies not only of exporters but also of importers were an important underlying cause of the price spikes realized in 2008, and are likely to be reinstituted now.
- Andrew Dorward is a Professor at The School of Oriental and African Studies, (University of London) and a specialist on these issues. He addressed several points:
 - The causes and consequences of price instability and the question of the magnitude of the 2008 crisis compared to the 1974 crisis, which depends heavily on the deflators used and the markets examined (period/country/products).
 - The issue of the problems raised by price instability must be placed in a wider context that makes it possible to take into account the current challenges in the area of natural and fossil resource management in response to population growth. Demand-side actions must not be neglected: reducing waste, changes in food habits in regard to meat consumption.
 - The emphasis is too frequently placed on managing the effects of instability but not enough on preventing this instability. To manage the problem, it is necessary to view it as a whole, and to focus more on promoting long-term processes increasing both volumes and stability of supplies and stocks in order to reduce the need for generally more problematic management of price stability.
 - It is important to take into account the specific situations of different types of farmers, and in particular the differentiated effects of policies on net buyers. The institutional dimension and the way that policies are implemented are of crucial importance.
 - Stable, low food prices are important for food security and social peace. Today, however, with the growth of the population and incomes, natural resources are becoming restrained, which implies high prices, in particular for energy and perhaps for food. This must be taken into account when defining economic policy.

- Maximo Torero (IFPRI) is the author of a proposal on managing price volatility when it is excessive. He presented the online platform set up by the IFPRI on this subject, which provides public information that can be used in making decisions.
 - He discussed the existing consensus on the negative impacts of “excessive volatility” for farmers and consumers. That said, the challenge is to define what is meant by excessive volatility.
 - He insisted on the fact that his analysis was international in scope, and that other approaches were necessary on the national level.
 - Stabilization at the national level must nevertheless take into account the dependency between markets and avoid exporting domestic instability to foreign markets.
 - The importance of the non-distorsive nature of the instruments used. The costs involved with the use of each instrument must be carefully assessed along with their impact on excessive volatility. In regard to physical stocks, for example, the definition of the optimal stock size and the need for a transparent trigger mechanism are key points. It is necessary to clearly distinguish between regulatory stocks and strategic emergency reserves.
 - The importance of information on stock levels. This is a major challenge, even on the national level, but it is crucial that this challenge be overcome.
- Kako Nubukpo is a Professor at the University of Togo, and Division Chief at the Office of the Presidency of WAEMU. He had decided to address the subject of price instability and public intervention from the standpoint of cotton, on which he is an acknowledged specialist. In particular, he discussed:
 - The (very high) volatility of cotton prices, which justifies applying price stabilization measures, and its causes (production cost variations cannot explain the high level of volatility), the role of developing countries’ subsidies in price formation, and the links between cotton cropping and cotton growers’ food security.
 - The importance of exchange rates in international competitiveness and the over-valuation of the CFA franc that constitutes a major handicap for agriculture; American subsidies are therefore the only issue behind the problem of African cotton’s competitiveness.
 - The importance of the budget constraints associated with HIPC initiatives, which prevents any ambitious agricultural policies.

Points Raised During the Discussion with the Audience:

- The importance of tackling unregulated markets to limit the impact of the financialization of markets on price volatility, while also avoiding “over-regulation.”
- The issue of exporting instability when one country stabilizes its own market.
- The current lack of successful experiments in the area of insurance in the framework of the World Bank program on price risk management.
- The interesting case of the rice market, for which there is no futures market and that has not been financialized. This forces one to look at other determining factors in the recent price spike and volatility.

Afternoon Session

Producers’ Point of View: Case study on the Union des Groupements pour la Commercialisation des Produits Agricoles de la Boucle du Mouhoun (UGCPA, Burkina Faso)

Mr. Dioma **Soumabéré** (UGCPA, Burkina Faso) discussed the importance of price stability for small farmers and shared the results of a local initiative in which organizing farmers and involving them in marketing is making it possible to obtain much more stable and higher prices. Indeed, farmers’ organizations have often had to fill in for the State in setting up market regulation instruments. He raised the issue of the balance between the State and private actors in this regulation (some functions remain the sole responsibility of the State, such as all regulatory matters). He specified that the UGCPA is currently participating in the constitution of the country’s food security stock and its intervention stock.

Round Table: The Viewpoint of the Political World

Is it necessary to act on agricultural price volatility? Why? How? On what level (national, regional, international)?

- Mr. Jonathan Brooks (OECD) stated that price instability requires both instruments acting on the long term and poverty and measures aiming to avoid the most harmful short-term impacts of sharp price hikes. However, price stabilization is not an objective in its own right (the goal is, rather, to protect vulnerable populations’ purchasing power), and we know that it is associated with multiple problems—costs, inefficiency, government failures. Despite these difficulties, market stabilization has a role to play because of the existence of market failures and poorly developed safety nets. Direct intervention is thus necessary to correct market failures, for example by improving information, actors’ capacity to manage risks and safety nets. The international level has a key role in the transmission of imbalances

on national markets and its impact on national policies, in function of whether or not international markets are able to manage local hazards. In the rare—but nevertheless plausible—case that international markets experience a rapid price hike, it is necessary to finance poor countries so they can withstand this growth in their food bill.

- Mr. Hafez Ghanem (FAO) discussed the problems involved in measuring price volatility (according to him, the right measurement is the difference between real and expected prices). Volatility must be expected to rise in the coming years for several reasons: growing market integration, rising cereal exports from ex-USSR countries (with much more variable productivity than elsewhere), the increasingly close link between oil markets and maize, the financial deregulation in the mid-1990s, and changes in storage policies (smaller emergency stocks). Among his recommendations, he identified various areas for potential action: the constitution of minimum emergency stocks (as experiments in regulation stocks have been negative overall), market transparency, the definition of a regulatory framework for futures markets (without falling into the trap of over-regulation because they are important for cash flows and risk coverage), the development of insurance systems (with the support of investment banks), the establishment of safety nets for the most vulnerable populations, and the definition of new global governance, notably to prevent the (legitimate) decisions of some countries to restrict exports from being costly for the rest of the world.
- Mr. Ousmane Djibo (NEPAD) insisted on the importance of the regional level when setting up economic policy measures. He presented the African Union's agricultural program, which aims to improve food security through increased investment in the agricultural sector and the associated gains in productivity.
- Mr. Moses Shaha (ESAFF, Kenya) discussed the harmful nature of price instability for small farmers in Kenya and the difficulties associated with State intervention and how this intervention can increase uncertainty if it is not properly conducted. The experiment conducted by the ESAFF, based on farmers' groups, shows that success is possible on the local scale.
- Mrs. Lourdes Adriano (ADB) discussed the dramatic impacts of the 2008 price hike in the Asia-Pacific region, and insisted on the urgency of setting up measures aiming to lessen the negative short-term impacts on poor consumers without neglecting the medium and long term. New solutions on the international, regional and national level must be found based on renewed forms of public-private partnerships. Buffer stocks or reserves, managed in a transparent and predictable manner, must be set up on the national and regional levels, trade agreements must discourage protectionism, safety nets must be improved, and investments must be made in commodity chains. Market operations (information), agricultural research, and north-south and south-south cooperation are also necessary.

Conclusion: The Day's Lessons by Mr Frédéric Bontems, Director of strategic management and prospective, Agence Française de Développement

The devastating impacts of the volatility of agricultural product prices on producers and consumers, particularly the poorest, have placed this issue at the heart of the G20's concerns. The goal of the day was to contribute to reflections on the possibilities and techniques for public intervention in this area. Three essential points must be drawn from the study:

- the policy dimension—price volatility has direct consequences on countries' social peace;
- the multi-scale nature of the phenomenon—price instability is present in international markets as it is in local markets, and there are complex relationships between these scales; and
- the presence of two sources of instability, one linked to natural conditions (exogenous) and the other linked to projection errors (endogenous).

Seven lessons can be learned from the day:

- One must be precise and attentive to the words used; regulation must be defined as all mechanisms in which private actors and public authorities interact to ensure that foodstuffs markets operate efficiently and benefit food security.
- Regulations are needed on the national/regional level as well as on the international level to stabilize food prices.
- Lowering volatility is a necessary factor in agricultural development, but it is not sufficient.
- A panoply of instruments must be used, depending on the context (country/products) and whether it is an emergency situation or not.
- The transparency and predictability of national and regional public policies are crucial for success.
- On the international level, market regulation must make it possible to avoid bubbles and protect the poorest countries in the case of sharp food price increases.
- In this way, one can say that price stabilization is desirable, but that its feasibility relies on tricky conditions, depends on the context, and must continuously be adapted to the context. Furthermore, it is necessary to differentiate between short-term effects and long-term effects, and take into account these different timelines when defining policies.

2. Managing Food Price Volatility : results of a two days workshop

Discussions among about fifty experts with contrasted positions

C. Peter Timmer

I am grateful to have an opportunity to offer my observations on the two days of discussions we just completed at CIRAD, on the draft paper prepared by GREMA that Françoise has just summarized so effectively. “Managing food price volatility” is “my” topic. It has been my intellectual passion for over 40 years as an academic researcher, a teacher, and an advisor in the field, especially in Indonesia, China and Vietnam. We had rich and vigorous discussions on Monday and Tuesday and I hope to capture some of that flavor today

What does price instability have to do with food security? We all agreed that (in general),

- 1) Price *spikes* hurt poor consumers;
- 2) Price *collapses* hurt farmers; and
- 3) Price *risks* reduce investments, including by smallholder farmers for agricultural modernization.

But my own work suggests that food price instability also has a deeper and more insidious impact: it slows down economic growth and the structural transformation that is the pathway out of rural poverty. Thus food price instability really hurts the poor in both the short run and the long run.

Consider a very simple model of food security that focuses on the *short run* versus the *long run*, and on the *macro* level (of policymakers) versus the *micro* level (of household decision makers). When the food economy is reasonably stable (and this is only possible when the financial system is reasonably stable as well), macro policymakers can focus on long-run investments and policies for inclusive economic growth, and households can focus on building their skills, human capital and savings. The goal is to get to the “lower right” box where households have sustainable access to food in the long run. That is, they are food secure.

But, if the food economy is highly unstable, constantly in crisis, policymakers spend all of their time and budget resources in the “upper left” box, trying to stabilize food prices and provide safety nets for the poor. During food crises, vulnerable households often *deplete* their human and financial capital just to stay alive. This is the world of poverty

traps and enduring food insecurity. We are also trapped in short-run, macro and humanitarian *crisis management*.

How do we break out of these traps? Franck Galtier and his colleagues have designed a simple framework to think about managing food price instability. It builds on two critical distinctions: between *preventing* food price instability and *coping* with the consequences of unstable food prices; and between the role of the *private sector* in each domain and the *public sector*.

Thus there is a 2x2 matrix with 4 cells (just like my food security matrix), which he labels A, B, C and D.

	Prevent	Cope
Private	"A" storage & transportation	"B" insurance hedging & futures markets
Public	"C" bufferstocks import/export controls	"D" safety nets

With the rise of market fundamentalism since the mid-1980s, most donor efforts have concentrated on A and B measures, and on D measures when food crises still erupted ("ABD" has a special meaning in US academia—"all but dissertation"—which means the student is "smart but not complete"). In view of the lack of success with the ABD approach, the issue at the workshop was whether approaches to "C" might work. Are there public interventions that could stabilize food prices?

We did not reach any specific conclusions, but we clarified the issues considerably. I will use a simple framework to explain our discussions:

There are four levels of action: Local, national, regional and international. Although the background paper focuses mainly on the distinction between national and international actions, our discussions included significant examples where farmer organizations at the local level and regional bodies such as ASEAN+3 have engaged in price stabilization initiatives.

Within these four levels of action, we discussed five main issues, and they were often specific to one of the levels of action just presented.

Where is price instability a problem?

At the local level, highly unstable farm gate prices are a significant burden to small farmers seeking to invest in modern agricultural techniques and raise their productivity. Consuming households (and many smallholder farm households are net consumers) are obviously the locus of burdens from high food prices and especially from price spikes.

At the national level, the concern is for price stability in major urban markets and is often the focus of action by macro policymakers.

At the international level, the concern is for the level and stability of food prices from the major exporters, and the possibility that export barriers might prevent access to food by importing countries in times of rising prices.

Which commodities need more stable prices?

Our discussion focused on three categories of agricultural commodities: food staples, cash crops and perennial tree crops. Prices of cash crops are a real concern to farmers but have relatively little impact on consumers. Similarly, perennial tree crops present special financing problems because of the long time horizon for the investment to start to pay off, and there is such a sharp distinction between short-run marginal costs and long-run average costs, but price variability has little impact on consumers.

Accordingly, most of our discussion was on price stabilization techniques for the major staple food grains, especially rice, wheat and maize. Although these commodities have much in common because they often form a large share of energy input among the poor, there was a clear recognition that the world rice market behaves very differently from the world markets for wheat and maize. There are other food grain markets with their own unusual trading regimes: cassava, millet and white maize, for example, often behave more like “non-tradable” commodities than the tradable commodities with large, liquid international markets. Any efforts to stabilize food grain prices will need to recognize the special characteristics of individual commodities.

What instruments are available to stabilize food prices?

We discussed three main categories of stabilization instruments: border (trade) controls, buffer (reserve) stocks, and regulation of financial markets involving agricultural commodities.

Border controls are a national issue because nations are defined by their borders. Economists do not like political borders very much because they impede the free flow of goods and services (and hence reduce the “gains to trade”), but the nation state is the main modern actor in many areas of economic, political and diplomatic initiatives. Borders, and border controls over trade, are a reality. The WTO seeks to impose disciplines on what border controls are legitimate, and agriculture has been included in those disciplines since the Uruguay Round, but the food crisis in 2007/08 revealed a serious asymmetry in how the WTO approaches border controls for food grains. Virtually all of the trade disciplines, and all of the current negotiations under the Doha Round, refer to import barriers rather than export controls. There was wide agreement at our workshop that export controls on food grains have been a significant source of price instability. The asymmetry of trade discussions should be rectified, but it is difficult to imagine grain exporting countries agreeing to significant restrictions on their ability to control exports as a means of stabilizing their domestic food prices. Food security is simply too important as a political mandate for national leaders to forgo this policy instrument.

Large reserves of grain, at whatever level, have the obvious advantage that they can be drawn on when harvests are damaged or there are surges in demand. Large reserves tend to hold price levels down as well, although there is a clear endogenous relationship, explained by the theory of supply of storage, between expectations of price changes and levels of stocks held by the private sector. The issue is whether the public sector should be holding reserve stocks of grain above and beyond the willingness of the

private sector to hold stocks (and the subsequent willingness of the private sector to hold these stocks in the presence of public stocks).

Holding public reserve stocks faces three key issues: their *costs* (and who should pay), *monitoring* the level and quality of stocks (and who should manage them), and *enforcement* of agreements to buy and release stocks according to some transparent rules. Each of these issues has been difficult to resolve even in the case of national stocks. There is virtually no experience at the international level of procuring, managing and releasing reserve stocks on behalf of an agreed protocol to stabilize grain prices. The experience of using Japanese “WTO” rice stocks in 2008 as an external supply source to prick the rapidly rising spike in world rice prices was clearly a unique episode (and even then the stocks were never actually released). Very serious doubts were expressed at the workshop that any internationally viable scheme of holding reserve stocks of grain for stabilization purposes could be agreed and implemented.

Regulation of financial markets for agricultural commodities was vigorously discussed, with attention focused on two possibilities: re-imposition of position limits on speculative positions for important food commodities traded on futures markets (such as existed before the financial deregulations in the 1990s), and a “Tobin-tax” on each financial transaction to slow the emergence of speculative bubbles. The difficulties with either approach were clear—many of the financial transactions in commodity markets do not actually take place on organized exchanges where regulators can see what is happening, no single market could initiate such regulations unless others around the world did as well, and there is no experience with taxing financial transactions of this sort. Still, it was recognized that the “financialization of food commodities” is a relatively recent and rapidly growing phenomenon and urgently needs more research and understanding.

How can stabilization interventions be governed?

The issue is important at three different levels (four, if the regional level is somehow distinct from the international level because of greater commonality of interests).

At the local level, especially for farm or community organizations, governance would seem to depend on active participation and “voice.” The great advantage of local initiatives, of course, is precisely their ability to be responsive to local conditions and aspirations. General guidelines on how to manage them are probably not very useful.

At the national level, democratic processes are widely thought to be the basis of good governance generally, and should provide appropriate feedback to national leaders on how well they are doing in managing the country’s food security. Still, it is important for outside analysts, donors and the private sector to realize that food security is inherently a political issue subject to political decision making. It is certainly desirable that good technical analysis, especially economic analysis, be brought to bear on these decisions, but history has shown how difficult it is to make such analyses relevant and implemented.

At the international (and regional) level, negotiations informed by transparent technical rules would seem to be the best way forward. But there was deep skepticism at the workshop that such negotiations could be successful.

How do we evaluate success or failure in stabilizing food prices?

At the local level, the basic issue is whether sustained gains are seen in agricultural productivity on small holder farms. Of course, many other ingredients are needed for “getting agriculture moving,” but a major rationale for stabilizing commodity prices at the farm gate is to enhance the profitability of these other investments. The feedback from success at this level is also critical: nothing would improve the outlook for food security more effectively than rapid increases in farm productivity, especially for staple food crops grown by small holders.

At the national level, success in stabilizing food prices is likely to be seen primarily in greater political support for the government that gets credit, and ultimately in a more stable investment climate that should stimulate economic growth. Although the political payoff is likely to be primarily in the short run, the contribution to economic growth will only be apparent to economic historians, and to the country’s consumers as they gradually escape from poverty.

At the international level, if a price stabilization accord can be agreed and implemented, success will almost certainly have to be measured using technically sophisticated but transparent methodologies that are part of the initial framework. Cost-benefit analysis is a powerful tool when stakeholders agree on the result.

Our conclusion? Reducing food price volatility is likely to be a highly specific process—depending on commodity, country, and global market conditions—but we should encourage countries in this process, NOT discourage them.

Some final thoughts, after the questions: There are some broad lessons, even when viewed through my “rice lens.” Rice has not been “financialized,” but there are still speculative hoarding episodes driven by widespread expectations of scarcity and surplus. At the country level, prices WILL be stabilized (or at least serious efforts will be made to do so). The issue going forward is whether these country efforts can be done in a way that has less impact on world prices. The most promising avenue in this regard is regional agreements on rice reserves (ASEAN+3), but these need a price stabilization objective as well as an “emergency” objective.

3. The impact of agricultural price volatility on supply chain stakeholders in Burkina Faso

Summary report based on interviews conducted with actors in agricultural sectors and their trade associations in Burkina Faso

Inter-Réseaux Développement rural

Affects of price volatility on agricultural actors in Burkina Faso

Producers

Intra-annual volatility

Although most farmers are aware of the advantages of stocking production, they are often **forced to sell at harvest time** when prices are lowest. Two phenomena can be observed. (i) *Over-commercialization* in relation to household needs, due to liquidity constraints at harvest time and lack of storage capacity: during the lean season, when cereal availability decreases and prices are high, households with a food deficit have no choice but to buy the same products they sell on the local market at much higher prices. (ii) *Undervaluation* of produce: this occurs when farmers in surplus areas sell low during harvest season, rather than waiting for the lean season, when profits are higher. This can be explained by the absence of commercialization credit and inadequate individual and collective storage facilities.

Inter-annual volatility

Producers struggle to generate high returns and thus stabilize market supply due to **lack of long-term support to agricultural production**. Production support such as input subsidies, access to credit, improved extension, and farm management advisory services can help farmers improve profitability and secure their production systems. Lack of security induces highly variable returns that exacerbate volatility. Combined with uncertain market opportunities and unpredictable prices, insecurity pushes farmers to adopt risk minimization strategies that discourage investment in intensification.

As a result, farmers struggle to plan their economic activities, as price volatility makes it difficult to obtain a lucrative price every year. Farmers invest without knowing whether even their production costs will be covered. The result is increasing indebtedness, which further limits their ability to access credit and make investments. The instability means that prices cannot serve as signals for farmers to make decisions on what to plant and when.

"Price instability destabilizes the producer, who is unable to organize operations in a way that helps him develop. The farmer does not know at what price his products will sell. He makes loans and buys fertilizer on credit, without knowing the sale price. If

commodity prices fall, he cannot honor his commitments and will spend the next season in debt, and the one after that trying to bounce back." (source: UGCPA)

Farmers' organizations

Farmers' organizations (FOs) often have difficulty planning. Indeed, FOs that provide marketing support to their members through "pre-payment" (or advance payment) systems, for instance, grapple with managing price risk: it is difficult to set the purchase price for members when the market price is unknown. For FOs that market produce collectively, choosing when to release stocks is also a challenge: at what point are market prices high enough? When should the FO hold on to stocks, in hopes that prices continue to rise? These difficult decisions are exacerbated by the fact that FOs often have little flexibility in terms of their treasury, and practically no room to take risks or deal with market downturns.

Price volatility can also undermine collective dynamics, particularly when it comes to marketing produce. For example, when production is stored to be sold later, if prices do not increase enough, the operation will fail and the FO will not be able to cover the cost of collecting, storing and packaging the produce.

Spikes and/or unanticipated price changes can also lead members and/or purchasers to default on commitments or contracts. Thus, during low production years, farmers do not always respect commitments to deliver produce to the FO, opting instead to sell to the highest bidder. This phenomenon is amplified by the complexity of social relations between producers and traders.

Processors

"The first consequence is a lower profit margin for processing firms; it is rarely possible to pass on the totality of commodity price increases to the finished products, as this would scare off customers." (source: Afrique verte)

The steady rise in commodity prices in recent years has significantly reduced margins of small processing units and companies, threatening their survival.

"There have always been price fluctuations, but they stayed within reason. Since the price hikes of 2008 (32%), cereal prices have become unbearable and we hope that the good harvest in the 2009/2010 season will bring them down." (source: Société Faso Riibo)

These financial constraints make it difficult for companies to access credit, therefore reducing their ability to purchase raw materials in large quantities when prices are low.

Intra-annual price variations combined with lack of storage facilities (either unavailable or too costly to acquire) force these processing companies to buy part of their raw materials at high prices during the lean period.

Price volatility sometimes pushes producers to default on contracts with processors in order to sell to the highest bidder.

Rural and urban consumers

Rural households: A majority of consumers are also producers. We can distinguish three categories of households: (i) non-producing households, which are entirely dependent on market prices in the same way urban households are; (ii) households producing a net deficit, i.e., production does not cover family food needs. They are strongly affected by price volatility, especially increases during the lean period, which affect their food security; (iii) households producing a net surplus, i.e., production covers food needs throughout the year. These households are affected by price volatility the same way producers are: falling prices at the time of sale affect the household's disposable income.

Urban households: Urban households make consumption choices based on the prices of imported and local products. The most vulnerable modify their eating habits to cover food staples, and when the situation worsens, they resort to debt and eat fewer meals a day. Dairy products, meat and vegetables are reduced under this strategy, which strongly impacts the nutritional situation, particularly of young children. When the crisis worsens, food riots are likely to break out in the cities.

The role of traders in the functioning of markets and their impact on price volatility: an ongoing debate

The interviews conducted for this study showed a genuine difference of opinion on traders' impact on price volatility. Some actors criticize their speculative tendency to hold on to stocks when prices are high and commodities scarce. Interviewees mentioned traders' practice of drastically reducing purchase prices in order to take advantage of producers' weak negotiating capacity and high liquidity needs, thus driving them to sell off their products, which are sold at high prices in deficit or remote areas.

However, others stressed the importance of traders, especially during deficit years, when they supply the market with purchases from neighboring countries. Traders have the ability to relieve isolated areas by marketing their products and/or providing access to products.

"In 2004/2005, at the peak of the food crisis in Burkina Faso, the cereal deficit was such that citizens and the government accused retailers of hiding stocks. An emergency meeting was convened at the Chamber of Commerce to ask merchants to bring out the cereals! We, the traders, proposed to wait 20 days, while we went to buy cereal in Ghana. The 18th day, we brought 20 trucks of cereal to the Ouagadougou market.," (source: member of the cereal industry trade association in Burkina Faso)

Although traders play off the volatility of prices to recoup this type of activity, interviews reveal that some traders face the same lack of investment capacity for long-term storage (borrowing in order to store large quantities). Moreover, they are subject to price risk during atypical years when abnormal market behavior results in small price fluctuations between harvest and the lean season. Many traders rotate their inventory several times a year (buying and selling fast) and therefore generate only very small margins on each rotation. Their expenditures are proportional to their ability to open up remote areas. The lack of organization of these actors and the emergence of "opportunistic traders" due to soaring prices raises the issue of regulating these actors.

In sum, the impact of price volatility on actors in the agricultural industry is mostly negative. However, it is important to keep in mind that some actors benefit from the increased intra-annual food prices to recoup costs of their operations. This is the case for intermediaries, but also producers who store produce and market it as a group (collective marketing, warrantage), thanks to a marketing loan that allows them to delay the release of produce on the market. "Typical" intra-annual volatility (low prices at harvest, high prices during the lean period) is, in this case, beneficial to producers who have storage capacity. The situation is problematic in the following cases: (i) for producers who cannot store, (ii) a market shift prior to or during the lean period for various reasons: massive imports, food aid or subsidized prices. There are also cases where price increases of imported cereals (and manufactured products like pasta) improve the competitiveness of local cereals (and local agro-food products), which can have a positive impact on producers.

strategies to cope with price volatility

Farmer organizations' strategies

To limit the impact of volatile commodity prices on their members, provide them market channels and a lucrative price, farmers' organizations implement different strategies and instruments. The following table provides an overview⁶.

Type of instrument/strategy	UGCPA	UDPNS7	FepaB	Mogtedo	CISV ⁸	FEPPASI	FNGN
Collective storage and marketing	X	X	X				
Warrantage					X		
Contracts with public and private actors	X	X	X				
Contract farming			X				
Agricultural stock exchanges			X				
Contractual relationship with processors				X			
Establishment of regional cooperatives						X	
Production support: input credits and training (IT, CEF)	X	X	X	X			X
Guarantee fund	X						
Price control	X			X			
Volume control	X			X			
Buffer stock							X
Security fund	X						
Quantitative restrictions on market access				X			

⁶ This overview is not exhaustive.

⁷ Departmental unions of cowpea producers in the province Sanmatenga.

⁸ CISV is an Italian NGO that supports a farmers' cooperative in southwestern Burkina Faso.

First and foremost, storage

Some FOs offer collective storage facilities, for marketing purposes or not: UGCPA collects and stores members' cereal surplus to sell during the marketing year. CISV supports a cooperative that practices warrantage by allowing its members to store produce so they can sell it during the lean period and obtain warehouse credit to develop other income generating activities.

Access to finance and production support

Some FOs also implement strategies to improve access to credit for both the organization and its members, such as the use of warehouse receipts, or a guarantee fund (sometimes backed by financial partners or members' contributions, as in the case of FepaB). These tools facilitate access to credit lines from microfinance institutions (MFIs) and commercial banks to (i) finance inputs for members, and sometimes, (ii) provide cash advances on members' standing crops (the case of UGCPA).

Strategies to hedge price risk

FOs use several types of strategies to hedge price risk. (i) They spread payments over the crop year by making advance payments prior to harvest (November). Prices are then revised at the beginning of the marketing year (January), at which time rebates or additional payments are made. (ii) Similarly, in the case of warehouse receipts, credit is calculated by applying a discount to the crop value, to protect members from prices that are not high enough to recoup their costs. (iii) FOs strive to gather as much information as possible on external factors influencing prices, so as to calculate a fair price at each stage. (iv) FOs consult with other sector actors to fix prices. In Mogtiedo, producers and parboilers negotiate the price of paddy and impose a floor price on all traders who buy on this market, which is controlled by the FO. (v) To protect themselves against potential years of instability, some FOs implement a guarantee fund to cover deficits if the fixed price is higher than the selling price, so as to avoid indebting farmers (the case of UGCPA, which takes 2 FCFA per kilogram of rice stored, to finance the fund).

Strategies to ensure marketing channels and the matching of supply to demand

The concentration of supply in one FO is an asset for buyers who want to simplify transactions by limiting the number of points of purchases. The interviews revealed different forms of contractual relationships: post-harvest contracts with institutional buyers (e.g., PAM/P4P, SONAGESS), which use a bidding process to supply their retail distribution network based on strict quality criteria (FepaB, UGCPA); post-harvest contracts with traders and processors (the case of most FOs), which require good negotiation skills; specific contracts between actors from the same supply chain (as in Mogtiedo); and finally, contract farming, as established by FepaB via production contracts between the FO and its members, used to honor its commitments with WFP (P4P) and the Burkinabe Brakina brewery.

Participation in cereal stock exchanges is another way to find market opportunities for producers and FO members by connecting sellers and buyers in the national or sub-regional area.

Volume control

Interviews revealed the case of one FO that sets quantitative thresholds for products going to market. This is the case of the cooperative in Mogteto, which promotes the flow of its members' products to the market before opening it up to products from non-members. This same cooperative has a buffer stock (constituted through repayment in kind of input credit) for when market volumes are low, thus allowing it to regulate prices at the local level.

Member loyalty and reinforcement of the cooperative spirit

One of the challenges for FOs that market their members' produce is to guarantee volumes needed to ensure profitability. This requires members to meet their delivery commitments and repay credit in kind. To address this problem, FOs use different strategies to ensure member loyalty including (i) provision of services: access to credit inputs, training, technical advice based on incentive systems that rank producers in different categories depending on their ability to honor commitments, the highest ranking providing more advantageous services (eg., UGCPA) and (ii) the payment of dividends on profits generated by product sales.

Joint strategies to drive local regulation

To address the problem of poorly organized markets (especially in border regions, as the FEPPASI experience demonstrates), some FOs rely on cooperation/partnership strategies with decentralized services of the State, local and sometimes municipal governments. The goal is to create favorable conditions so that everyone can play their role in the market.

Other findings on the choice and level of implementation of FOs' strategies:

Strategies that differ in scale: The majority of strategies implemented by FOs are limited in scope. Either very localized (e.g., the self-managed Mogteto market), or limited to local, occasionally departmental, or regional levels (e.g., UGCPA, which contributes 5% to SONAGESS stocks), these initiatives do not influence the market in terms of quantities.

Strategies that differ depending on prices: When prices fall, it is in the interest of FOs to sell as a group, to benefit from greater negotiating power with traders. Conversely, when prices rise, FO members can make a profit by storing and selling later, provided they have the technical and financial capacity. In this case, the strategy becomes more individual than collective.

Strategies that differ depending on surplus areas and areas of chronic deficit

In surplus areas (such as the southwest), FOs focus on marketing the surplus of their members, while in deficit areas (such as the northwest, an area that faces food insecurity), FOs help members develop off-season crops like vegetables and other income-generating activities to mitigate cereal production deficits. The challenge is to secure incomes so that households can buy cereal. This is the case of the *Fédération nationale des groupements Naam* (FNGN), which combines the promotion of off-season crops with food granaries and training in soil fertility renewal techniques. Furthermore,

to better match supply to demand and supply deficit areas with products from surplus areas, FepaB has implemented a strategy to sell production from union affiliates that produce a surplus to affiliates that face deficits. FNGN pursues a similar strategy. The initiatives of *Afrique Verte/Aprossa* are along the same lines.

Processors' strategies

Despite price volatility and lack of government and international aid, which affects the capacity of processors to secure their incomes, some strategies have nevertheless been put in place.

The federation of agro-food industries in Burkina Faso (FIAB) wants to strengthen its members' capacity (small agro-food processing units) to contract and negotiate with FOs: two key factors to the process of stabilizing raw materials prices.

Processors choose not to increase prices of processed products despite fluctuations in the cost of raw materials, so as not to destabilize consumers and lose a clientele that is difficult to keep loyal.

"We set an average price which is the balance point between the low prices of raw materials at harvest time and the high prices during the lean season. The goal is to keep a fixed price throughout the year." (source: Société Faso Riibo)

Another strategy is to maintain the selling price by reducing the volume per bag.

"This year, our company was highly threatened by the sharp rise in sugar prices (which have more than doubled). This increase is the result of a government policy that requires sugar importers to first purchase supplies from the national sugar companies, before importing the remainder. The result is that prices have soared, because local sugar supply does not cover demand. We do not want to increase the selling prices of our products, so we have chosen to reduce the volume per bag, otherwise, we would already be bankrupt." (source: Société Faso Riibo)

Food security strategies of producer households and rural consumers

At the local level: implementation of village cereal banks to store food in preparation for the lean period. Families may also have their own granaries.

Trade associations strategies

Lobbying the government is one of the main strategies of agricultural sector trade associations: negotiating agricultural finance, renewed involvement in national agricultural production, protection of local markets vis-à-vis imports and better market regulation.

The *Comité Interprofessionnel des Céréales du Burkina* (CICB), for example, is working to develop cereal marketing cooperatives at the local level, in collaboration with local elected officials. The idea is to identify a number of markets in Burkina Faso to create the first cereal cooperatives.

"Local elected officials will identify a rural municipality to sell cereal on market day. A market study will be carried out in the vicinity of the town the day before the market to fix a guaranteed minimum price the next day. On market day, the producer brings his

cereals to the market, the Comité will monitor the buyers and sellers entering the market and make note of quantities. The next day, the producer comes to receive payment for sale. The trader no longer has to intercept farmers on the way to the market to buy at lower prices. We have identified three markets where we will implement these cereal marketing cooperatives by early 2011."

Some trade associations and FOs work to secure markets for local products. In the case of the trade association *Comité interprofessionnel du riz du Burkina Faso* (CIRB), this involves promoting local rice, as a way to ensure more stable opportunities for producers through improved product visibility. To cope with rising prices of local rice compared to imported rice, CIRB set up flagship stores with illuminated signs indicating that "this seller is licensed by the trade association - high quality local rice sold here": "CRIB, sellers of local rice". The strategy is to publicize, including through radio and TV, the licensed shops that sell good quality rice at an acceptable price. The idea is to improve the visibility of local rice as well as fight against fraud (resellers who sell imported rice packaged as local rice).

Government intervention in the regulation of markets in Burkina Faso: initiatives, perspectives and recommendations of stakeholder

Regulatory instruments used in agricultural markets in Burkina Faso

Price **stabilization** instruments

Production support policies based on subsidizing agricultural inputs and setting a floor price: since the 2008 crisis, a government "rice" operation has subsidized fertilizer and seeds, which have been distributed to farmers on credit with repayment in kind at delivery (amount based on the floor price set by the government);

Market Information Systems (MIS): dissemination of price information to avoid local speculation (TV, radios);

Stocks in SONAGESS: SONAGESS has 2 stocks:

- The National Security Stock is designed to address food security, and has no impact on price volatility due to small volumes (approximately 30,000 tons);
- The intervention stock, which involves a few tens of thousands of tons more, is also inadequate and unable to play a regulating role.

The government also sets up on an ad hoc basis **border control instruments**: for example, restrictions on import tariffs and/or border closings in the event of price spikes. These measures go against Community trade control regulation (liberalized regional domestic markets and Community trade policy at the borders).

Instruments to **reduce the effects** of price volatility retroactively

These measures fall under the strategy of prevention and management of food crises, and generally target vulnerable populations:

Subsidized prices in deficit regions: the objective is to limit price hikes in deficit areas where food insecurity is high.

Distribution of food vouchers (Ouagadougou and Bubo Dioulasso), via a licensed distribution network.

Free distribution of seed and fertilizer.

Food and cash for work initiatives, promotion of income generating activities, etc.

Perspectives of agricultural sector stakeholders on government intervention in market regulation: challenges and recommendations

Marketing: support collective marketing in surplus areas and regulate the activities of traders

If FOs market their production collectively, traders will be able to buy in large quantities at lower prices and pass on this savings to consumers.

Today in Burkina Faso, there is no licensing system for traders; the result is that anyone can get involved. Government regulation is recommended to improve the transparency and functioning of markets heavily influenced by this group of actors.

Improve transparency and market information

Interviews revealed a lack of transparency in the very markets that need information to operate effectively. It is the trade associations' role to encourage information-sharing between supply chain actors, but they need support in the form of government regulation to do so.

Moreover, many FOs stressed the lack of knowledge and information on the flow of cereals within the country and with neighboring countries. Here, too, the government could play a regulatory role by requiring actors to communicate on their levels of stocks, location, business operations, etc. This would make it easier to identify surplus and deficit areas.

Mobilization of buffer stocks and the establishment of social safety nets

The SONAGESS stock is no longer decentralized. There is a need to move towards a decentralization of food security stocks. In addition, these national stocks are not big enough to truly affect markets. The volume of the national security stock has not been revised since the early 1980s, while production has tripled and the population more than doubled.

Better coordination between public and private actors, particularly FOs

Private actors, especially FOs, are sometimes destabilized when faced with unexpected and inopportune government interventions such as subsidized prices, food aid operations, and input subsidies, which can disrupt the market and create distortion. There is a need to improve dialogue between public and private actors to enhance the effectiveness of interventions and market predictability.

Agricultural policies

The government only reacts once a crisis is underway, when it really should intervene beforehand, especially to support production. Pre-crisis interventions include training

farmers, providing them adequate equipment, and supplying quality inputs. There is a need to implement policies that encourage production, storage and marketing.

Government support to processors is insufficient. Consultative frameworks are in place (CICB, CIRB, etc.), but overall, the productive phases of the agricultural supply chain receive more support than the processing and upgrading phases.

It is hoped that the government will implement a genuine strategy for financing agriculture and the various links in the supply chain. For example, one way to increase competition among traders and reduce speculation or unfair agreements, is to create and/or strengthen the business skills of traders (through credit).

There is a need to focus on sectors that are key to food security—namely maize and rice—rather than trying to promote all products (the current strategy of the Ministry of Agriculture).

Conclusion and recommendations: Striking a balance between public and private sectors in the regulation of agricultural markets in Burkina Faso

The volatility of agricultural prices in Burkina Faso is a structural phenomenon that has been around for several decades. Its consequences affect agricultural industry actors, especially farmers and their organizations, in diverse ways. Different actors have different interests when it comes to market functioning: traders, processors and farmer organizations who stock to sell surplus would like to benefit from increased intra-annual prices, but also hedge the risks of inter-annual variations. FOs in deficit areas have developed strategies to support income diversification and promote village food security stocks. While "typical" intra-annual volatility is easy to manage, these actors must face the challenge of atypical market downturns, when price risk is high.

Market unpredictability is the major constraint facing agricultural actors today. In light of the structural adjustment programs (SAPs) of the 1990s and reduced government involvement in the regulation of agricultural markets, actors have developed instruments (see table above) that are private-sector based but also designed to substitute government failures.

Today, **the government plays only a very small role in regulating markets.** Agricultural actors criticize the lack of market regulation (especially the lack of organization of traders); the ineffectiveness of national security and intervention stocks to regulate markets; the absence of support for production, processing, and upgrading local products; as well as uncoordinated, unexpected measures that can be counterproductive.

For their part, **FOs are developing interesting strategies that combine private and public-type instruments**, but these initiatives are being implemented on a very small scale—regional, at best. These FOs are largely supported by donors and technical assistance providers, without whom their activities would be seriously compromised. Moreover, despite the government's lack of support to FOs, it plays a key role in their operations, often serving as the major trading partner their products (e.g., UGCPA and FepaB). The current challenge is to find a middle ground between total reliance on private sector operators and the highly interventionist policies of the 1970s: **a joint**

public-private partnership approach to market regulation. This could involve (i) the introduction of a combination of instruments that aim to anticipate market behavior, (ii) a consultative decision-making approach that brings together supply chain stakeholders and government actors, (iii) price negotiations (price ranges) between public and private players.

FOs may be taking care of the production support needs of their members, but the government still has a role to play in facilitating access to agricultural finance. Similarly, even though FOs have taken it upon themselves to test new contractual forms to market their products, the government still needs to regulate traders' activities and takes steps to create a secure environment (by registering contracts, offering possibilities to take legal recourse, etc.). And while FOs can develop regulatory tools to control volumes on highly restricted markets, the government needs to more fully appropriate the country's production, to increase its capacity to stock food in case of crisis or price volatility.

Trade organizations offer an adequate framework for negotiations and to improve dialogue between the private and public sectors. They exist in several industries, including cereal and rice (the legislative process is underway), and their main role is currently to lobby and promote local products. It would be useful for them to develop their potential (i) to oversee contracts between sector actors and (ii) negotiate with government authorities.

Finally, we must not forget that Burkina Faso is part of a fast-changing sub-regional economic community. **Regional integration**, the free movement of goods within the sub-region, and the implementation of a regional agricultural policy should be considered as driving forces for domestic agricultural production. Discussions on regulation of domestic markets must be integrated into a more comprehensive approach to regulation within the regional economic community: (i) management of complementarities between major production and consumption areas, (ii) selection and coordination of regulatory instruments at different scales, and (iii) establishment of effective border tools to manage international price volatility.

Part C

Around Markets Regulation:

Some Notes

Full texts of Notes are available at the following address : <http://www.inter-reseaux.org/ressources-thematiques/article/etude-grema-sur-les-instruments-de->

1. Agricultural Market Regulation: Lessons from History and Economic Thought

JM Boussard

Summary

The question of agricultural market regulation has been viewed differently depending on the era, state of economic thinking, and circumstances. Reflecting the fact that economic thinking has always been stimulated by events, here we shall focus on:

- a) the issue of food security from ancient times to the 18th century,
- b) the issue of international trade during the 19th century, and
- c) the issue of market instability in the 20th century, particularly during the Great Depression.

I – Antiquity and the Middle Ages: From the Search for Food Security to the Emergence of the Modern State

The history of societies until the Middle Ages shows us that they have always sought to ensure their food security by relying on collective institutions not driven by the search for profit but rather by the individual interests of family groups or groups of traders.

For instance, in primitive village societies where the market was absent, the village leader or feudal lord was responsible for stocks.

With the appearance of the division of labor between agriculture and cottage industries, the production of individual agricultural surpluses and the market, food security was no longer ensured by the village leader or feudal lord, but rather by hierarchical forms of coordination. In ancient times, the authorities thus implemented public storage policies (Egypt) and agricultural market regulation policies (Athens, Rome). In the Middle Ages, monarchs sought to have sufficient stocks and clean up urban markets. In the 16th century, Thomas More recommended that public stocks correspond to two years of consumption and surplus production, with the surplus exported at low cost.

However, until then, approaches were exclusively pragmatic in nature and aimed to resolve a concrete problem at a given moment in time. It was during the 18th century that the need to understand what was happening and justify public action (or inaction) by an in-depth analysis of the causes behind the phenomena emerged. It was also during this period that “liberalism” emerged—the idea that the selfish pursuit of individual interests could lead to the good of all through trade and the market.

The 18th Century and the Birth of Liberalism

The idea of liberalism found its roots in the English philosophers of “natural law.” Relayed by the “Physiocrats,” it was then taken up in a very diluted form by Adam Smith.

In regard to the central question of agricultural and food products, the Physiocrats, and notably François Quesnay, recommended eliminating the numerous public storage measures, transport control and diverse regulations, emphasizing their inconveniences but forgetting their advantages. They therefore counted on the well-understood interests of speculators (buy in periods of abundance, sell in periods of shortage) to ensure the inter-annual offsetting of good and bad harvests, as well as on the interests of traders for the geographical offsetting of provinces that had surpluses with those that had shortfalls.

These ideas were fought by a few authors. For instance, Ferdinand Galiani explained the difficulty of developing trade for a product such as wheat, a crucial product that was the same everywhere and produced almost everywhere. Because of production and transportation times, the wheat trade imposed risks that only bankers holding a monopoly could support. Supply and demand could therefore not be regulated by the market alone.

Galiani was not heard. At the end of Louis XV’s reign and during the start of Louis XVI’s reign, France undertook liberalization several times, but backtracked many times because of the negative consequences of liberalization, notably the Paris uprising of 1775. After the revolutionary period and the first Empire marked by state interventionism, the question re-emerged during the Restoration when the emigrant aristocrats again defended Quesnay’s ideas. Cautious, Louis XVIII opted for domestic liberalism but set up a system of variable customs duties at the borders, the “sliding scale” that lasted until Napoleon III.

The 19th Century: The Canonic Form of Liberal Theories and the Difficulties Applying Them

Although the 18th century ended with a posthumous victory for Galiani’s analyses, based on the observation of what would later be called “market failings,” the question of liberalism returned at the start of the 19th century in England in a different light. The justification was much more rigorous than that given by the Physiocrats and, above all, the question was a new one: should Europe continue to produce all its food or would it not be better to count on more fertile distant lands (notably America) to ensure more efficient production.

In England, Adam Smith, David Ricardo (the beneficial nature of national specialization) and John Stuart Mill (single equilibrium theory) helped build a true economic science. However, their analyses, which led to advocating liberalization, were static; they ignored the phenomena tied to the accumulation of capital, projection errors, and income distribution. What is more, they relied on more or less arbitrary assumptions and

assumed that the market operated properly, which is debatable for agriculture which these authors did not think to treat differently from other economic activities. These authors' influence can be seen in the suppression of the Corn Laws in 1846.

In Germany in the 1840s, Friedrich List defended the need to protect emerging industries from imports, but did not apply this same reasoning to agriculture. The United States did this in the 19th century.

In Europe, generally speaking, the 19th century alternated between periods of liberalism and periods of protectionism, with the proponents of liberalism relying on Ricardo's theories and the proponents of protectionism on pragmatic common sense but, unlike Galiani, without any mention of agriculture's particularities and without challenging the idea that price fluctuations came only from harvest levels and the weather.

Liberalism dominated until the 1870s, but it then became apparent that cheap agricultural imports lead to poverty in the countryside that were, in this way, no longer able to provide outlets for industry (deflationary spiral). European countries then adopted protectionist agricultural policies (in France, the Méline tariff of 1892).

In regard to sugar, initially produced in the colonies, its production grew in Europe in the 19th century, eventually leading to surpluses and a trade war between countries (export subsidies). This trade war was ended with the first "product agreement" signed in 1901 (a new agreement based on quotas was signed in 1931).

World War I led to an increase in state-controlled economy, but liberalism returned in force during the post-war period.

The 1929 Crash and its Consequences

The causes of the 1929 Crash were numerous, and the agricultural sector was not uninvolved (bank seizures of land impossible to resell).

In the United States, Franklin Roosevelt implemented a supply incentive policy that led to the post-World War II surpluses. This policy was guided by a degree of pragmatism because there was not in reality any new economic theory and the reasons why the market did not work remained a mystery until the elaboration of the cobweb theory by Mordecai Ezekiel.

The "cobweb" is an economic model showing the existence of "endogenous" causes of price fluctuations. It is based on the lapse of time between producers' decisions and the consequences of these decisions (production volumes). The model generates price and quantity measurements that fluctuate, alternating "highs" and "lows." The system can be "convergent" (the oscillations get smaller over time), "periodic" (the oscillations stay the same), or "divergent" (the oscillations get larger). The ratio of slopes to straight lines (hypothesis of "linear" supply and demand curves) determines which of these regimes will apply. For any given supply, a demand that is more "elastic" than the supply will produce a convergent cobweb. It will be periodic if demand is as elastic as supply. When

demand is less elastic than supply, the cobweb will be divergent. This is the case with food products. In reality, various factors prevent the attainment of such results, but the crucial lesson is that, on agricultural markets, the market equilibrium point is dynamically unstable and the equilibrium can never be maintained sustainably. In addition, this phenomenon extends to the entire economy.

While he had little influence on general economists, Ezekiel has long been described as the man that justified the agricultural exception because of the rigidity of demand and its consequences for market stability.

State-Control of Agriculture After World War II and its Contestation

The post-war period was marked by a revival of interventionist agricultural policies. The theory of public policy assessment and “cost/benefit analysis” developed and spread.

The cost of price fluctuations for the various actors and for society as a whole was analyzed. Their high social cost justified policies aiming to eliminate them.

In regard to ways to lower these fluctuations, one can distinguish between:

- The international market, where the problem comes from producers’ poor information and their anticipation errors. It is therefore appropriate to set up some degree of “planning”: product agreements grew out of this analysis, but they failed because some countries did not play by the rules.
- On the national level, agricultural policies. The levers to regularize domestic prices are legion (input subsidies, storage, export subsidies). Little costly in the case of shortages, these policies become costly when surpluses emerge because of stable prices.

Several elements then led to the domination of liberal ideas:

- The theory of “lobbies”: farmers, highly organized, managed to extort extravagant advantages from society. To end this, the market should be allowed to balance supply and demand, giving farmers only set compensation linked to the rights that they had historically acquired. This is the intellectual foundation for decoupled payments.
- Studies based on “calculable models of general equilibrium” showing that exploiting comparative advantages would be likely to increase global incomes significantly.
- The observation that many countries have not developed at the expected pace. The “structural adjustment” policies followed.

Faced with the risk that liberalism would in return lead to price fluctuations, the authors counted on futures markets, various financial products, and harvest insurance systems to guarantee farmers' revenues.

The Return of Liberalism After 1980, Contested by "Chaos" Theorists

Liberal ideology had a considerable influence on European and American agricultural policies from the 1980s to 2007, and on the inclusion of agriculture in the Uruguay Round.

The problem linked to price fluctuations was ignored, partially because we had forgotten that agricultural prices fluctuated and partially because we believed that liberalization (and therefore the substitution of a global market for a "narrow" international market acting as an outlet for surpluses) would resolve this fluctuation due to the "law of large numbers."

The outcome of these liberalization efforts is currently mixed, with the degree of liberalization much higher in Europe and the United States.

The recent progress in economic theory when it comes to the chaos dynamic could be the starting point for a new approach to the problem of agricultural price fluctuations.

In fact, despite liberalization, international prices currently continue to fluctuate with the same magnitude as before.

From this standpoint, it should be noted that the theory that fluctuations would be lessened by expanding the market depends on a crucial assumption: that supply fluctuations depend on phenomena beyond farmers' control, such as weather incidents or epidemics ("exogenous" causes). However, some research based on mathematical "chaos" theories shows that, while the causes are "endogenous" (that is to say linked to anticipation errors and production times), the fluctuations can be highly irregular, with the absence of any periods. The practical conclusions from the analysis underlying these models go against the grain of those that recommend liberalization: by merging two markets, one obtains synchronous fluctuations that are as devastating as those that originally existed in the two separate markets. Similarly, while with fluctuations of exogenous origin, the liberalization of a production quota system makes it possible to attenuate fluctuations on the external market, in the case of endogenous fluctuations, such a system stabilizes the external market.

In Conclusion

Despite infinitely more sophisticated research instruments supplied with more reliable and more complete statistical sources, the heart of the debate has not evolved much since the time of the controversy between Turgot, a brilliant theoretician whose theories relied on fragile axioms, and the pragmatic Galiani who attempted to measure theory against the yardstick of reality and examine specific cases. In the alternation between phases of liberalism and interventionism, the rapidity with which the political

leaders forget the conditions under which the previous episode happened and their incapacity to learn the lessons from them is surprising.

Galiani's pragmatic viewpoint seems better suited to real conditions than the theory of global general equilibrium. The interest of the general equilibrium theory as the basis of comparison and as an ideal is not up for discussion: in economics, this theory plays somewhat the same role as the notion of lack of friction plays in rational mechanics. But in the real world and on the Earth's surface, friction always plays a major role, and all applications of mechanics take it into account. It should be the same in economics.

2. Forecasting and Models

Françoise Gérard, CIRAD-ES

Forecasting consists of determining the levels of key variables at different future times over varied geographic spaces. The aim is to anticipate future events to facilitate adaptations (policy, behaviors, etc.) and lower certain negative impacts. Unlike predictions focusing on a single future that one seeks to know with precision, forecasting examines the consequences of more or less probable scenarios.

Forecasting as Applied to the Economy and the Difficulties Involved

Forecasts are based:

- either on the collection of experts' opinions, using more or less formal methods, so as to compare and harmonize them, but without any assurances as to the overall coherence of the scenarios envisaged;
- or on quantitative models. In this case, the model's equations provide this coherence.

A typology of the multiple econometric models elaborated over the past twenty years can be proposed based on the question examined, the scale of analysis and the methods employed. For forecasts of world agricultural trade, the questions focus on the system's capacity to meet solvent demand and future changes in this demand, the environmental consequences, probable prices, and the major export and import zones for each product. One can distinguish between sectoral (e.g. agriculture) and general (i.e. the economy as a whole) equilibrium models and accounting models based on "physical" equilibrium and containing no (or few) economic behavior equations. The models propose analysis at varied scales (global, regional, national). They are based on determining and formulating in equation form the primary relations at work and estimating, based on past data or experts' opinions, function parameters; and on extrapolating future trends by modifying some of the entry parameters, or assuming the continuation of trends, or even adapting the system to a supposedly driving variable such as rising demand.

This type of work has multiplied thanks to the advances in computer calculation capacities and the awareness that current decisions influence the future and considerable time may be needed for certain modifications because of the inertia of the economic system and the cumulative processes at work in its relations with social and environmental systems.

As the 2006-2008 food crisis illustrates, which few experts had predicted, models do not generally make it possible to provide scenarios that turn out to be true or even clarify the future. Indeed:

a) The questions asked and relations chosen are the subject of choices that are rarely explicit and even less often discussed. And yet, when the question is well posed and the principal relations are well identified, models provide relatively relevant results and are useful because they make it possible to synthesize the multiple effects linked to the relations between variables.

b) Most models favor the perpetuation of past trends, whereas crises are breaks with trends. Dynamic simulation models could determine the probability of crisis but they are chaotic and because of this difficult to elaborate and utilize (high degree of sensitivity to initial conditions). They are little appreciated by experts because they yield a wide range of possible impacts that depend on parameters that we cannot calculate with sufficient precision. The search for consensus does not favor innovative analyses.

c) Numerous elements that are not easily quantifiable are missing in models even though they play a major role in the evolution of economic variables: social phenomena, cultural phenomena, institutional phenomena, balances of power, etc.

d) The goal of “global coverage” of phenomena leads to the simplification of local specificities so as to limit the number of variables. The “heavy” trends revealed do not allow these specificities to be depicted.

Useful Tools for Reflection... whose Assumptions Must Be Made Explicit

Forecasting obliges one to simplify things considerably, and differences with reality are explained by the multiple elements seen as “exogenous” (weather events, the state of social relations, technical advances, etc.). Economic forecasting tools then become quite unverifiable. This is the major stumbling block that stands in the way of the discipline’s progress and makes it vulnerable to exploitation.

In this way, the results of models cannot be seen as depicting an overall reality. Choices are made on the primary relations to take into account. Some aspects are pushed aside to limit the number of variables to analyze and stick to easily quantifiable phenomena. It is therefore necessary to make explicit which relations were chosen as essential and which were left out because of their negligible nature. Faced with complex phenomena, models are nevertheless useful to depict the relations between variables and synthesize their impacts for the various types of actors. By revealing unsupportable outcomes if current trends continue, they can suggest necessary reforms and, by emphasizing possible blockages, suggest appropriate strategies.

They must not, however, be confused with reality. To improve models and their use and avoid their exploitation for ideological purposes, the results must systematically be

accompanied by a notice specifying the main assumptions, key relations used or excluded, and the probable consequences of these choices...

Trade Liberalization and Global Models

Let us look at the example of the research on trade liberalization that has been at the forefront for thirty years in regard to development policies. Trade liberalization is justified on the basis of quantified assessments drawn from general equilibrium models (often based on the same data: the GTAP database) or partial equilibrium models. These models, cast from the “same mold” based on the Walrasian theory of a certain future, are all in favor of trade liberalization and the disappearance of agricultural policies. Indeed, by construction, they believe that:

- * markets exploit all comparative advantages and are balanced at all times, because economic agents know prices in advance and can therefore effectively and with certainty predict production, regardless of the necessary lapse of time;
- * prices are consequently established at a level such that supply harmoniously equals demand; and
- * free markets are therefore the most efficient means to allocate rare resources (automatic regulation by the market) and economic policies are always constraints that lower the efficiency of actors’ behaviors.

In addition, the arguments for trade liberalization insist on the potential gains for developing countries due to:

- price stabilization thanks to the dilution of shocks over a wider market,
- the dissemination of technical innovations and improvements, thanks to the intensification of trade, and
- a dynamic of growth and formal and informal job creation in rural areas, benefiting all of the population and notably the poorest.

This discourse is given excessive media coverage but ignores the real content of studies (produced, for example, by the World Bank) that indicate the complexity of the phenomena and the difficulties portraying them, or even the recommendations of the models’ authors, who emphasize the caution that should be taken when using their results.

Despite their complexity, global models seem extremely simplified in relation to the global economic system. This is notably the case when modeling producers’ and consumers’ behaviors:

- capital markets are assumed to be perfect, and all profitable activities are therefore financed without delay, and
- prices allow for the immediate equalization of supply and demand, with agents having all the information necessary for their decisions, without any uncertainty.

In fact, these models do not evolve in “real time” even when they are dynamic. Finally, only inappropriate government intervention opposes agents’ optimal decisions. What is more, the government’s role is limited to redistributing income and consumption. This omits the economy’s role in public goods and currency, as it does the role of monopolies

or the power of certain actors in markets (the assumption of “pure and perfect” competition).

Furthermore, despite being cast from the same mold, the results vary considerably from one model to the next because a few key assumptions have a non-negligible impact on the results (elasticities, shift of factors from one sector to another, real levels of customs duties).

Also, the estimates of global gains from liberalization have fallen over time and have always shown a lack of positive impacts—and sometimes even negative impacts—for the poorest. Despite this, discourse is evolving very slowly and development policy design even more slowly: belief in trade liberalization and its beneficial role for development seems to persist in many publications and at the center of the discourse on development.

One must therefore question the use of the results of models. By refusing to discuss their assumptions and know their limits, and by using them for ideological purposes rather than as tools for dialogue or to align phenomena, we are not preparing correctly for events that are, however, probable, as the recent crisis in agricultural markets shows. The lack of consideration of uncertainty—which plays an important role in how markets operate and makes up the fundamental justification for regulation policies—does not allow one to test the costs and advantages of agricultural policies.

It is appropriate to discuss the assumptions in the models and see their results as more or less probable possible futures. They could be improved by iterative correction processes, by comparing results to reality. This implies forecasts that first verify that they can reproduce the past and that examine objects that can be observed in reality.

4- The Tricky Question of Food Insecurity and its Persistence

In poor countries, because of socioeconomic conditions and the complexity of mechanisms, models can contribute to the study of food security, help evaluate alternative policies, and help organize negotiations among actors—a crucial element in policy legitimacy and credibility.

As for projects, the success of economic policies probably depends on the possibility of redefining them during their roll out, which implies having both the necessary information and expertise capacities. Models are in this case effective tools to align data and collect statistics, and therefore to multiply analysis capacities and serve as training and negotiation tools. Indeed, they offer elements to support policy reflection by making explicit the expected consequences of various measures on each type of actor and their costs.

For this, models must:

- be able to reproduce the main dynamics at work (in particular the cumulative phenomena that are decisive in household trajectories and thereby movement into and out of poverty),
- be based on relatively detailed empirical foundations,
- take into account the diversity of contexts,
- submit their assumptions and the consequences of these assumptions to various actors for opinions, and
- take into account the environmental dimension.

Several recent works show the salutary impacts on food security of policies that make it possible to increase capital in rural areas. These analyses use empirical models to reproduce theoretical approaches in terms of “poverty traps.” Indeed, food insecurity is here considered to come from low incomes, which are themselves generated by poor labor productivity linked to the absence of savings and therefore investments. Producers minimize their relations with the market to the exchanges necessary to cover incompressible monetary needs and favor self-consumption. The low use of inputs then lowers monetary needs.

Liberalization does not make it possible to break this vicious circle. Market regulation policies then have a key role because they make it possible to make investment profitability more secure. They must be accompanied by measures addressing access to capital (credit) and public investment in infrastructures. They can only be assessed correctly using models if the models are dynamic and take into account uncertainty.

Even though one must also examine the institutional and financial “feasibility” of policies, modeling can make it possible to designate the most effective levers. For this, one must:

- have access to models with solid empirical foundations and relatively detailed depictions of specific situations,
- clearly explain the assumptions and their consequences on the results,
- discuss assumptions and results with the various actors concerned,
- consequentially use models in a iterative process involving the actors concerned and policy designers so as to improve both the tools and the negotiation process,
- integrate uncertainty in models of agricultural market operations,
- depict the environmental impacts that result from actors’ decisions and the policies conducted, and
- use dynamic models to depict cumulative processes.

Such models would be useful as support tools to meet the 21st century’s food security challenges.

It is easier to comply with these requirements for national questions than for questions addressing the global level. The larger and more complex the object depicted, the more simplifications will be necessary. Thus, global forecasting models addressing humanity’s capacity to feed itself neglect, because of the complexity of real relations and the need to quantify them easily, financial phenomena. Yet, current events remind us of their

importance. At the same time, it is not possible to depict the detailed situation of each household in the framework of a national study. The question of which scale is most efficient has not been resolved and depends on the question asked. National models are a compromise: they authorize the depiction of a certain degree of detail without requiring an excessive number of variables. They correspond to easily accessible statistics, which facilitates validation.

3. Agricultural Market Regulation: Elements to Elaborate Proposals

Henri Rouillé d'Orfeuil, CIRAD

Summary

Agricultural market regulation involves the objectives that human societies and governments set for themselves in regard to their agricultural systems. If the aim is to obtain food as inexpensively as possible and, incidentally, to free farm labor for employment in other economic sectors, one must then accept the eviction of a large majority of peasants in Africa and Asia. If, on the contrary, the aim is to avoid peasant hemorrhages, the agricultural and food “world war” waged through the widespread placing of farmers in competition with each other must be ended. In this case, in the absence of an invisible hand, very visible hands must enforce the general interest and universal rights. The challenge is to work so that on all geographic scales and in all regions of the world, the systems of governance are or become enlightened and responsible.

Beyond the debate on the reasonableness of public intervention in markets, it is therefore important to formulate proposals on intervention methods and the precautions to take. These proposals address several aspects: (A) the fight against price volatility in agricultural markets; (B) the distribution of value added throughout the agrifood value chain; (C) the management of temporary and structural imbalances; (D) the actions to negotiate to stabilize international agricultural markets; and (E) the factors limiting the political bodies’ power to intervene and the risks of corruption linked to these bodies’ actions.

The Fight Against Agricultural Market Volatility

To ensure that public intervention is transparent and predictable, we propose considering **price bands or ranges** for each product. The bands are defined by a floor under which prices become unacceptable for farmers, and by a ceiling above which prices become unacceptable for consumers. The distance between the floor and ceiling must be fairly wide, not too rigid, and not too far removed from international fluctuations to avoid outside pressure caused by an excessive price gap so as to limit the cost of intervention and adapt to unpredictable changes.

The public authorities should intervene on three levels:

- **act as mediator, or even referee, between the actors** concerned by the agricultural market so that the price band is the result of a negotiation and, if possible, a compromise between the actors before each crop year;

- **prevent the price from falling below the floor** by increasing demand and lowering the food supply through the use of **stocks, exports, import restrictions, diversification to non-food uses, social policies targeting people suffering from hunger, and supply control measures in the case of structural and lasting over-supply; and**
- **prevent the price from rising above the ceiling** by lowering demand and increasing supply through the use of **de-stocking, export restrictions, imports, lowering the flow of agricultural products to non-food uses, and encouraging production in the case of structural and lasting under-supply.**

The Search for Greater Equity in How Value Is Shared Throughout the Agrifood Chain

To improve proper market operation and ensure greater equity between groups of actors in the agrifood chain, the authorities could **foster commodity chain organization and help actors get better organized and defend their interests.** This calls for **information and training actions, support for professional organization, and a better credit system.**

Managing the Short Term (and Temporary Imbalances) and the Long Term (and Structural Imbalances)

The gap of several months between production decisions, the agricultural product harvest and food consumption introduces factors of uncertainty in how markets operate. Price bands are a valuable tool to lower this uncertainty because they guarantee the transparency and predictability of public interventions, provided the public authorities do indeed intervene in the ways that they promised to do.

It is also difficult to know whether an unpredictable event is accidental or if it marks the start of a long-term trend, in other words whether temporary (infra-annual) supply/demand imbalances are a manifestation of structural (pluri-annual) imbalances. This is why it is appropriate to have tools that make it possible to regulate supply and demand over periods of time longer than one production cycle, either through storage capacity or the regulation of foreign trade:

- **Stocks** are indispensable, at least over a one-year period, to take into account the seasonal nature of harvests and the daily nature of food consumption. But other types of stocks are indispensable. The volumetric calibration of the stock must in this way differ according to whether the stock is a food and strategic reserve, or serves to offset the seasonality of agricultural production, withstand unpredictable shocks (natural, economic, military, etc. disasters) or intervene in the market.
- **International trade** is justified but on the condition that it is regulated in function of the needs of the markets of arrival and departure for the products traded. This implies reviving the first definition of trade, in the sense of contracts between countries with shortages and countries with surpluses, and turning one's back on

market integration. International trade will only contribute to the stability of national markets if the national authorities have the policy space they need to intervene in their markets when they no longer regulate themselves or regulate themselves poorly.

- The **growth and flexibility of non-food markets (agrofuels for example)** could be powerful stabilizers for agricultural markets. Conceived as an agricultural market adjustment variable, the production of ethanol or alcohol must be a light industry decentralized in cooperatives (or even an activity integrated into other farming activities) rather than a heavy industry as it is currently.
- **Supply control** (fallow lands, forest replanting, quotas, reorienting production systems, etc.) is a prospect to consider in the case of structural over-production if one wants to limit the cost of agricultural policy and avoid the collapse of prices.
- **Contractualization between individual producers or their cooperatives and the first processors** is also a path to provide farmers with predictability as long as there is a commitment on price levels in the contracts. But this path raises questions: can all producers and all products be the subject or object of a contract with an industrial partner? Do the public authorities or courts have the means to enforce these contracts?
- The **development of futures markets** equals a form of contractualization with financial actors, even though the timeline for futures markets is often too short to meet farmers' need for security.

Cleaning Up International Markets

A political authority needs to define a form of economic, environmental and social specifications. Global governance is not currently able to do this, and it is on the national level that the real or potential authority to fight agricultural price volatility is found. For the international level, several lines of action are proposed:

- **Organize international consultation on trade:** the aim is to **return to a contractual vision of international trade**. The residual share of non-contractual trade, linked to the difficulty of precisely planning national food needs, could be highly volatile but would no longer destabilize the world food market.
- **Organize global consultation to set the volume of an international stock** (different from national reserves) that could be used to stabilize the market, and negotiate the division of tasks among the countries organizing storage and supplying the stock.
- **Organize an international program to fight hunger and malnutrition** around measures that enable the "solvabilization" of the people concerned: economic re-integration, financial aid or targeted food aid (modeled on the Brazilian "Zero Hunger" program).

- **Develop commodity chains around new uses for agricultural products to absorb surpluses.** The new products should be able to be conserved easily, correspond to less essential uses than food, be worth less than food products but worth enough to avoid discouraging their production, and have low fixed production costs. An **international research and development program on decentralized agrofuel production** could be launched to this effect.

Improving the Capacities for and Quality of National Governance and Fighting the Possible Corruptions Linked to the Expansion of their Policy Spaces

While a growing share of experts and government leaders admit that agricultural market regulation is needed, doubts remain as to the public authorities' real power and fears exist as to the risks of corruption. The rigor with which public interventions are implemented, the objective and predictable conditions that trigger these actions, and the democratic control of leaders and their actions are decisive to ensure the credibility of market regulation policies. This implies:

- **Increasing national authorities' "policy space":** we must **review agricultural and food trade agreements**, in priority those of the WTO, and **reexamine the conditions** that apply to the blunt opening of markets. We must also **improve the quality of statistics**, the **capacities to analyze market evolutions** and **administrations** (customs services, fiscal administrations, law enforcement agencies, storage infrastructures, etc.).
- Avoid the risks of corruption (insider trading, clientelism, preferential treatment, etc.) linked to public product purchase or sale decisions, auctions, allocation of import or export permits, production quota transfers, etc. The parries are known: transparency in decision-making and implementation processes, press freedom and freedom of association, promotion of the state and the rule of law, strengthening professional organizations or unions, and more generally strengthening participatory democracy extending representative democracy.

4. International market regulation : the example of tropical products

Benoit Daviron (CIRAD), July 2010

Summary

This paper presents the main historical stages of the debate around international agreements on tropical products.

It shows that:

- Product agreement plans must be interpreted in light of two essential, historically dated facts: (a) the existence in producer countries of state offices able to administer the volumes exported and control stocks; and (b) the convergence of strategies to enter international trade by so-called “developing” countries with a shared goal of maximizing currency revenues to finance industrialization.
- The erosion of these two “pillars” starting in the 1970s was what caused these agreements to fail.

The conclusion attempts to draw lessons for current market regulation projects.

THE FORMATION OF INTERNATIONAL MARKETS AS OLIGOPOLIES OF STATE OFFICES (1914-1950)

After a period of openness to the exterior and intensification of long-distance trade, the progressive formation of national barriers—initiated at the end of the 19th century and strengthened during World War I and after the 1929 Crash—led, immediately after World War II, to the fragmentation of the world into national or imperial markets that were isolated, or relatively isolated, from each other.

This favored development of national markets relied on a number of public and private national institutions that guaranteed price stabilization and agricultural incomes.

On their independence, the so-called “Third World” countries adopted for themselves the idea of development focused on the domestic market, instituting or consolidating strict separations between domestic markets and the international market. The stabilization funds, marketing boards and other marketing offices from the imperial era survived decolonization. They guaranteed, in conjunction with tariff policies, domestic prices’ independence from international prices.

In this way, in the post-war years, the administered and centralized management of the national levels of foreign trade characterized the operation of international agricultural product markets. Countries thus appeared as units on international markets. The global stocks held by states and the near totality of international markets could be assimilated with state/nation oligopolies. Market regulation therefore amounted to cooperation among these oligopolies.

A BROAD CONSENSUS IN FAVOR OF INTERNATIONAL COMMODITIES AGREEMENTS (1950-1970)

The issue of international agreements had its golden hours during the post-war period, even though several projects had emerged as early as the mid-19th century and more particularly between the two wars. The two key moments were the 1947 Conference on Trade and Employment and the 1964 United Nations Conference on Trade and Development.

- From the Conference on Trade and Employment (1947-1948) ...

After the war, the United States wanted to promote the creation of a wide range of multilateral institutions. Modeled on the United Nations Organization, an organization would be in charge of managing the economic relations between nations. In this way, the aim of the International Conference on Trade and Employment that was held in Havana in 1947-1948 and that gave rise to the Havana Charter, was to create the International Trade Organization.

The organization of commodities markets was included in the draft initially presented by the United States. Indeed, noting that agreements on commodities had become common practices since the 1930s, the United States wanted to channel them and limit their impact.

Thus, the agreements were supposed to bring together producer and consumer countries, and decision-making powers were supposed to be shared between the two groups. Above all, however, the Charter specified that they were transitional instruments (with a maximum duration of five years) created in response to exceptional situations (over-production) and to allow production systems to adapt. Latin-American countries were not able to ensure the recognition of either producer countries' right to unilateral action or the principle of lasting price stabilization to maintain their purchasing power.

Nevertheless, the Havana Charter did not lead to the creation of an International Trade Organization. For many years, the General Agreement on Tariffs and Trade (GATT), the only tangible outcome of the process, was the only multilateral discussion forum on international trade. Guided by the free-trade prospective but riddled with derogating clauses—in particular for agriculture—it provided, during the post-war period, only a very incomplete instrument for its management.

... to the Conference on Trade and Development (1964)

The question of international commodities agreements came back with force in 1964 during the United Nations Conference on Trade and Development. It is now profoundly linked to “import substitution policies” and industrialization, implemented first in Latin America and then in nearly all developing countries after the crisis in the 1930s and more particularly after World War II.

Import substitution policies aim to foster the industrialization of economies specialized in the export of commodities. The industrialization strategy focuses on the domestic market, unlike the export-oriented strategies practiced at the start of the century that would once again be adopted a few decades later.

They were fueled by multiple theoretical and ideological influences, notably through the work of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) Secretariat headed by Raul Prebisch.

They notably consisted of applying monetary overvaluation that allowed a direct transfer of purchasing power from the primary sector, the currency supplier, to the industrial sector, the currency user. The primary sector nevertheless conserved a preponderant place in exports, with their re-focusing on the few products for which each country had an uncontested advantage.

This increased import needs. Indeed, while industrialization makes it possible to lower foreign purchases of consumer goods, it also triggers skyrocketing equipment purchases. Thus, with the dizzying drop in international prices for commodities at the end of the Korean War, the countries “under import substitution” ran up against insupportable trade balance problems.

This is why the international commodity agreements were one of the main proposals put forth by the initiators of the UNCTAD. The approach was substantially different from the approach that had previously prevailed. The Havana Charter saw the agreements as exceptional and temporary measures to manage imbalances so as to allow sectors in crisis to adapt. Henceforth, the objective was much more to maximize export revenues through permanent price support mechanisms, with notably the establishment of minimum prices.

THE APOGEE AND DECLINE OF NEGOTIATIONS ON INTERNATIONAL COMMODITIES AGREEMENTS (1970 on)

The 1970s were the heyday of the North/South clash over international commodities markets (“coup de force” by OPEC, experiments with “untamed” cartelization of commodities markets by developing countries). The idea of an integrated commodities program was written into the Programme of Action on the Establishment of a New International Economic Order voted in 1974 by the United Nations. Adopted during the 4th UNCTAD (1976), it was finalized during the 5th UNCTAD (1979).

The program provided for the negotiation of eighteen international agreements (on bananas, bauxite, tropical wood, cocoa, coffee, natural rubber, cotton, copper, tin, hard fibers, vegetable oils, oilseeds, jute, manganese, iron ore, sugar, tea and meat). These agreements were supposed to rely on buffer stocks financed jointly by a 470 million dollar common fund, 68% of which financed by OECD countries. A second funding line (256 million dollars) was planned for research and development actions.

This dynamic came to an abrupt end with the changing of the decade. The 6th and 7th UNCTAD (1983 and 1987) produced no tangible results in the implementation of the integrated program. Only an agreement on rubber containing a buffer stock emerged. OPEC wavered starting in 1984, and the few painfully established agreements disappeared one by one (tin in 1985, cocoa in 1987, and coffee in 1989). It was then the time of the minimalist approach: agreements no longer targeted global wealth redistribution, but aimed to accompany market cycles.

This standoff in the negotiation process and the splintering of the political unity of the "Third World" reflect the growing heterogeneity of these countries' economies and their form of insertion in international trade. Indeed, the economy differentiation trend that began at the end of the 1960s was accelerated by the various economic shocks in the 1970s and 1980s (oil shock, debt crisis, etc.).

In the agricultural field, the sector taxation model ceded its place to a wide diversity of situations. Food self-sufficiency policies, agricultural export promotion policies, and policies to replace raw materials with processed products for export were accompanied by the elimination of the levies applied and even positive transfers in favor of agriculture.

From the standpoint of the agricultural trade dynamic, while developing countries as a whole were pushed to the side in international trade from 1950 to 1975 (46% of world agricultural exports in 1945, compared to 27% in 1975), their trajectories diverged afterward depending on the continent:

- The volume of agricultural imports skyrocketed in Africa and Latin America, while imports increased very slowly in Asia.
- Africa's agricultural exports dropped off starting in 1973 and stabilized starting in 1984, whereas agricultural exports grew rapidly for Latin America and Asia.

The convergence of export strategies had made it possible to find the bases for tropical market stabilization through multilateral agreements. On the contrary, the heterogeneity of these strategies, and in particular the adoption of export promotion strategies by certain countries, made any attempts at lastingly sharing the market between exporters and at price stabilization very difficult. The choice of agreements relying on buffer stocks rather than on export quotas only allowed this problem to be avoided temporarily because of the lack of production discipline by exporter countries (see, in particular, the agreements on tin and cocoa).

In addition, the oligopolies were also being dismantled. Indeed, since the end of the 1980s, the existence of states/nations as active units in international markets had progressively been challenged. The Uruguay Round agreements organized state withdrawal, removing—or at least sharply limiting—their latitude for strategic intervention (export or import volume control). In addition, much more rapid and sudden state withdrawal happened in the developing countries that had “adopted” structural adjustment policies.

BY WAY OF A CONCLUSION: WHAT LESSONS FOR INTERNATIONAL MARKET REGULATION PROJECTS?

The two pillars that allowed international agreements to exist no longer exist:

- Producer countries’ export policies no longer converge around the objective of maximizing currency revenues. If there is any convergence today, it is around the objective of competitiveness...
- The governments of producer countries have lost control of exports and product stocks to companies.

This does not mean that, in the future, international agreements could not emerge around the objective of price stabilization.

But for this to happen, several things must occur:

- First, this objective must be shared by the main exporter and/or importer countries. This is far from the case for the moment. It would require, in these various countries, that the objective of price stabilization be shared by actors other than farmers, that it be seen as being in the general interest, and therefore that it would allow for the construction of vast alliances. For instance, in the 1960s and 1970s, maximizing export revenues was seen as necessary for industrialization, and therefore for “development.”
- Second, governments must recover a minimal degree of control over stocks and/or exports. Yet, what countries today have the administrative and financial capacities necessary to implement a policy of export control and therefore a storage or production management policy? What countries are likely to be able to acquire these capacities rapidly? These are the questions that need further study.

5. Stabilization Policies and the WTO

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Summary

This paper tackles the question of the compatibility of public market stabilization instruments with the WTO rules applied to developing countries.

We shall first examine the three pillars of the 1994 Agreement on Agriculture (AoA) (border protection, export regulation, and domestic support measures), then we shall examine whether Regional Trade Agreements (RTAs) and the current negotiations make it possible to take into account international price volatility better than the AoA.

The Agreement on Agriculture's Conceptual Framework: Greater Trade Liberalization and Less Distortive Aid

The AoA organizes the progressive opening to competition of agricultural systems worldwide by transforming all protections into fixed customs duties (tariff setting) and bringing the tariffs thus obtained down to a consolidated level. In addition to this, export subsidies and aid that has an impact on production are lowered.

Border Protection Instruments

Solely Tariff and Fixed Measures

Non-tariff measures on the agricultural product trade (quantitative restrictions and variable import levies, minimum import prices, discretionary import regimes, non-tariff measures applied by state trading companies, self-limitation of exports, similar border measures other than customs duties strictly speaking) are now banned, with a few exceptions.

The impossibility for WTO member countries to use price control measures can be illustrated by the dispute between Argentina and Chile from 2000 to 2007 over the question of the import price bands set up by Chile for several products.

At the same time, the AoA contains provisions that can be used to respond, partially, to market instability. Access to these provisions is not the same for developing and developed countries, and the initial situation of the country when the concession lists were established influences the possibility or impossibility of maintaining protection instruments.

Safeguards for Exceptional and Temporary Situations

The AoA does not forbid recourse to certain non-tariff import restrictions: measured applied under the provisions on the balance of payments, general safeguard clauses, general exceptions, provisions in the Agreement on the Application of Sanitary and Phytosanitary Measures, provisions in the Agreement on Technical Barriers to Trade, and other general WTO provisions.

The “Special Safeguard Clause” permits raising tariffs above their consolidated levels, but only for short periods of time and as a temporary measure. It is therefore not a solution for prolonged drops in international prices. In addition, developing countries that have notified ceiling rates—notably the case for Least Developed Countries (LDCs)—cannot use it.

Special and Differential Treatment for Developing Countries Not Always Advantageous

Developing countries receive special treatment under the special and differential treatment clause. LDCs are not obliged to notify commitments to lower their customs duties. However, they cannot exceed their consolidated level of customs duties.

In addition, developing countries have the possibility of consolidating their duties (making them impassable) at ceiling rates, without reference to the duties actually applied and without reference to past customs duties.

Yet, for ceiling rates to be effective, they must:

- be sufficiently high compared to the duties applied, which is not always the case; and
- be able to be actually used by the developing countries that have notified them, which can be difficult notably for countries subject to structural adjustment.

Maintaining Tariff Peaks and Instruments Other than Ad Valorem Duties

The tariffication mechanism allowed some countries to notify still very high tariffs (tariff peaks) for certain sensitive products. This is especially the case for developed countries, notably the European Union and the United States. Some developing countries, while they were able to notify sometimes high ceiling rates (greater than 100%), apply levels of protection that are among the lowest in the world. For instance, the highest rate in WAEMU’s common external tariff (CET) is 20%.

The AoA authorizes in practice protection instruments other than *ad valorem* customs duties that would allow for more effective market protections: specific duties, tariff quotas, seasonal duties, etc. However, most developing countries have not notified these types of instrument and therefore cannot use them.

Finally, the countries that have the means to do so have offset, at least partially, the drop in farmers incomes' due to the opening of borders. However, developing countries have in general not notified such direct decoupled aid.

The Case of Quantitative Restrictions and Export Taxes

Restriction policies and export taxation remain for many developing countries the favored measures to meet diverse objectives, including the preservation of food security. In this way, the 2006-2008 food crisis led various rice exporting countries to limit or ban their exports in order to supply their domestic markets in priority and limit the price hike on these markets. These policies were denounced for their effects on the habitual destination markets.

WTO rules do not forbid export taxes. In addition, exemptions are planned that limit the ban on quantitative restrictions: they may be applied temporarily to prevent or resolve a critical situation due to a shortage of food products or other essential products for the country. As long as the developing country in question is not a net exporter of the product (if it is, certain conditions must be met), countries can therefore , in addition to taxes, set up quantitative restrictions on food product exports.

Production Support Policies and Managing Market Instability

All domestic support measures that have an effect on prices or quantities are subject to reduction.

Under special and differentiated treatment (SDT), developing countries are not obliged to lower:

- investment subsidies and agricultural input subsidies for low-income farmers or farmers with limited resources, or
- support destined to encourage the replacement of illicit narcotic crops.

In addition, the “de minimis” clause allows countries to maintain:

- agricultural product support when the support does not exceed 5% of the production value, and
- support other than product support when it does not exceed 5% of the value of the country's total agricultural production. This rate is 10% for developing countries. LDCs are subject to no reduction obligations but cannot increase “distortive” support.

“Non-distortive” support (Green Box) is exempt from reduction: decoupled aid and direct payments to producers, public service programs of a general nature (research,

anti-pest programs, training, extension, etc.), aid in the case of natural disasters, activity cessation aid, environmental protection programs, etc.

Spending on holding public stocks is authorized, but only if these stocks target food security alone. Hidden support via purchase and re-sale prices is therefore not tolerated. What is more, domestic food aid also seems to be among the measures that are exempt from reduction, as long as it is linked to nutrition-related objectives.

In the last two cases, the goal of market stabilization may not be used to justify the use of the two types of measures in question.

In sum, the WTO AoA organizes the transition to a large global market through capped and dropping customs duties, mostly decoupled support, and special safeguards in the case of price or import volume shocks. Only the pace and magnitude of commitments change for developing countries, with the exception of LDCs that are exempt from liberalization obligations. The legal alternative to liberalization is limited to (temporary or permanent) protection. Price stabilization is removed. Developing countries were not mistaken and in the framework of the Doha Round are negotiating exceptions for certain products labeled “special products” and a special safeguard mechanism, rather than instruments such as variable levies or guaranteed price policies. But what about RTAs involving developing countries?

Are Regional Trade Agreements (RTAs) a Better Response to the Challenge of Market Stabilization?

WTO member countries may sign Regional Trade Agreements (customs unions or free trade agreements). In this way, they can depart from the non-discrimination principle as long as the RTAs cover a “substantial part” of the trade and are implemented within a “reasonable length of time.” Are RTAs a better response to the challenge of market regulation? Are public stabilization policies tolerated even though the WTO bans them?

In principle, no, because RTAs must be compatible with WTO rules and refer to these rules.

In practice, RTAs usually only increase trade liberalization among the parties to the agreements compared to their commitments with the WTO. In this way, RTAs are often much more restrictive when it comes to the use of trade policy instruments: they do not address the consolidated tariffs at the WTO but applied tariffs that they lower or eliminate, often with a status quo clause that prevents countries from raising the tariffs applied at the time the agreement was entered into. In addition, the WTO does not impose asymmetry between developed countries and developing countries when a RTA involves both types of countries, contrary to the WTO rules that include special and differentiated treatment. The asymmetry that may exist in the degree or pace of liberalization is the result of the negotiations between the parties.

Policy space is therefore increasingly limited: only food security or the “special” nature of a product for developing countries (in the terms of the current multilateral negotiations still underway) can justify measures influencing prices or quantities outside of support measures that have been capped on a historic basis (“Amber Box”) but are nonexistent in practice.

Are Current Negotiations Evolving Toward Better Consideration of Price Volatility?

The negotiations underway on the AoA have not challenged current rules at all. They aim to continue trade liberalization and further reduce distortive support and export subsidies.

For developing countries, the most important discussions focus primarily on:

- “special products” that could receive special treatment in regard to lowering consolidated tariffs; and
- the special safeguard mechanism that allows them, as does the current Special Safeguard Clause, to temporarily increase their levels of protection in the case of sharp increases in imports or sharp drops in the price of imported products. This mechanism would be available to all developing countries, including those that consolidated their tariffs at ceiling rates, and easier to trigger than the current clause.

The issue of exchange rates has been addressed relatively little in the negotiations whereas they are a crucial stake in international trade.

Beyond WTO rules, some developing countries have implemented measures that bypass or are sometimes incompatible with the WTO’s rules; these measures deal with sanitary or quality criteria or criteria arising formally from agreements between private actors.

In conclusion, the WTO framework, like the RTA framework, cannot create the conditions that would allow for the ambitious use of market stabilization instruments. Indeed, all of the rules established there, including those for developing countries, aim to reduce the use of such instruments. The existing flexibilities and those under negotiation are merely exceptional provisions or special treatment compared to the overall rules. Paradoxically, developed countries, which are least eligible for exceptions to the rules, are the ones that use stabilization instruments the most because they used them during the baseline periods chosen in the AoA. This situation suggests that strong advocacy efforts will be necessary to modify the philosophy behind the AoA to take into account structural market stabilization measures, and notably to authorize developing countries and LDCs to introduce instruments that they have not notified.

6. Food Security and the Economic Crisis

Lucien Bourgeois, economist

Summary

It was thought that another crisis like the 1929 Crash was impossible because we had immeasurably more effective means to counter the risks. And yet, the crisis did indeed happen. Its magnitude and the loss of confidence that it generated were a surprise. Only governments' actions were able to restore confidence: in this way, we rediscovered the collective essence of money!

The risks have not been removed—as we can see with the Greek crisis, which illustrates Europe's economic policy coordination flaws. The current skyrocketing of cereal prices—which illustrates the dangers of unregulated trade globalization—will certainly have a strong impact on future agriculture policies.

The Market Has Not Been a Good Indicator for Non-Renewable Goods

The 2002 reversal in oil prices only became obvious in 2004. Other industrial commodities followed the trend.

The principal explanation given—increased demand from emerging countries—is not satisfactory. Indeed, this growing demand was not new. In reality, since the 1980s, oil companies have not, due to the drop in petrol prices after the spike in 1980, had an incentive to increase their supply rapidly. Thus, for nearly twenty years, oil was three to four times less expensive than in 1980. This also did not encourage fossil energy savings or the development of substitute energies. After the 2007-2008 shock, limits were again discussed. But, because of the drop in prices, one can readily fear that there has not been any lasting changes in oil and mining companies' investment plans. There will therefore be other crises if we continue to rely on the market alone, as it is not able to give clear signals to enable the long-term adaptation of supply to demand.

The rise in oil prices also showed the dependency of industrialized countries' agricultural production, and the dangers of using agricultural products to generate energy. Indeed, rising oil prices pull up the prices of food products. We saw this in 2006 in the United States with the program to produce corn ethanol.

Only the United States Have Been Able to Restore Confidence

A manifestation of the imbalances in the global economy (excessive household debt destined to increase consumption in a context of stagnating salaries), the 2008 financial crisis was the decisive element in the contextual change. After the collapse following the American government's refusal to support the Lehman Brothers bank, only government

refinancing of banks was able to restore a degree of confidence in the system and avoid disaster.

The consequence was a very rapid increase in government debt, sometimes leading to no revival of growth and to drastic drops in standards of living.

But, beyond patching the holes, the causes of the problems were not really addressed: no suppression of fiscal paradises, no measures to limit or tax the circulation of capital, nor even any separation of business banks from deposit banks.

The Economic Crisis Is Not Over

After 2009, and under the impetus of emerging countries such as China and India, global growth became positive again. But the previous imbalances have not been corrected, notably America's trade deficit with China. This deficit has not resulted in a depreciation of the dollar and an appreciation of the yuan because of China's massive purchasing of American treasury bonds. The only true variable in currency adjustment has long been the value of the euro, which was revalued by 80% between the start of the 2000s and 2008, threatening European exports (with the exception of Germany). The divergent situations among European countries generates doubts as to the durability of the euro and the recovery of lasting growth in the EU.

A WTO Agreement Would Threaten World Food Security

The WTO negotiations failed in 2008, under the pressure from an "objective" alliance of India and the United States, the two countries that most saw their food security as an inescapable element of national independence. In this context, it is not very plausible to pretend to deregulate agricultural trade as one would any other product.

In reality, the negotiations were tested by the crisis. The discussions on agricultural trade—the outcome of which could have been very dangerous for world food security—were a pretext in part. Indeed, all the countries feared, in reality, Chinese industry and no one trusted the dollar, the main currency used in international trade.

The Crisis Turned a Spotlight on the Scope of Wealthy Countries' Agricultural Aid

The crisis upset the context for agricultural policy in wealthy countries. After the Berlin Wall fell, the EU gave up on adopting a food security policy. It returned to its colonial habits in a world that had once again become a "natural space" and undertook an "honorable withdrawal" from agriculture. As part of a strategic alliance with the United States, it made the rest of the world accept its direct aid by placing it in a "Blue Box" and then a "Green Box" (single payment entitlement or SPE, under agro-environmental conditions, "decoupled" from agricultural production itself). The crisis reveals the inoperative nature of this strategy, which furthermore cannot be generalized to the other countries of the world.

Decoupled Aid Does Not Improve Agricultural Income Security in Wealthy Countries

In this way, SPEs turn out to be unjustifiable when prices are high and insufficient when prices are low. Calculated in function of the historic rights of each farmer and little capped, they seem unfair because linked to heritage. Like any land rent, they will progressively be integrated in the price of agricultural land. In regard to other countries, decoupled aid appears to be agricultural potential aid, and therefore export aid. In the context of growing public debt, it is becoming increasingly difficult to justify such forms of aid!

The Crisis Calls into Question the “Inevitable” Drop in the Number of Farms

For fifty years, agricultural policies have been built on the principle that the number of farmers will inevitably drop. The aim is to foster capitalization and an increase in farm size to make farms more competitive with other large exporting countries. However, at a time when unemployment is rising, it is appropriate to question this dogma. Indeed, unlike industry, there are few economies of scale available in farming, particularly if one does not take aid into account. If one also includes the problem of the inter-generational transmission of capital, increasing farm size loses much of its interest. Should public funds be used to finance the restructuring of agriculture and support the job seekers thus created?

Price Volatility Lowers the Effectiveness of Agrifood Commodity Chains

The sharp spike in prices in 2006-2008 revealed the inflationary effect for consumers of agricultural price instability. Indeed, when prices rise sharply, commodity chain organization is disturbed and some operators' margins are compressed because they are unable to pass on the higher prices to consumers. But this then causes them to react to “catch up” and insure themselves against price volatility risks.

The Poorest Segments' Food Is Threatened

One specificity of agrifood products compared to other products is the urgency of the purchase act: even if prices rise suddenly, consumers cannot delay their purchases for several months. However, the poorest consumers may be excluded. This is why agricultural policies aim to lower prices for consumers, mainly for the calories that fill stomachs least expensively (bread, milk, meat).

The EU had long constituted buffer stocks. They notably made it possible to inexpensively supply institutions that provided free food to the poorest. When Europe's stock policies were called into question, prices rose sharply for these institutions.

The Energy Crisis and Agricultural Product Crisis Were Not the Cause but Rather the Consequence of the Economic Crisis

It will be impossible to find solutions to the crisis until the crisis has been analyzed.

Certain “Malthusian” theories have attributed the 2006-2008 crisis to the insufficiency of oil resources, agricultural production or other physical factors. In reality, the energy crisis and agricultural product crisis were not the cause but rather the consequence of the economic crisis. And this economic crisis is the consequence of a lack of global governance to accompany the rapid development of international trade.

The emergence of China as a powerhouse was predictable: annual growth in China has oscillated between 8% and 10% for thirty years! No market mechanism corrected the trade imbalances (American deficit and Chinese surplus) because a degree of parity was maintained between the yuan and the dollar. The 2008 financial crisis revealed the dangers of globalization without regulatory mechanisms. Markets cannot be expanded without also expanding the power of the authorities in charge of enforcing the rules of the game.

A Crisis Triggered by Wealthy Countries that Is Costly for Poor Countries

The sharp price hike in 2006-2008 was caused less by a change in food supply and demand than by insufficient stock levels when a new demand for agrofuels emerged.

Thus, faced with the need to cut their budgets and in a context where they felt that Brazil could “feed the world,” the EU and the United States did not feel it was necessary to finance stocks. They therefore fell to a level insufficient to prevent speculation. Simultaneously, the United States decided to show the rest of the world that it had the means to create a substitute for oil using corn. In the space of a few months, ethanol production was launched and rapidly absorbed 100 million tons.

In this way, the food crisis was largely the result of decisions by wealthy countries that had nothing to do with food.

But these decisions had many unfortunate consequences on food for the poorest people, notably in the poorest countries that had become accustomed to feeding their urban populations with inexpensive imports rather than developing domestic agricultural production. This is one of the particularities of agricultural markets: a small drop in supply generates a proportionally larger increase in prices. And the number of people who can no longer feed themselves increases rapidly. Riots spread, and led the governments of poor countries to subsidize food purchases. In this way, wealthy countries’ savings force poor countries to spend more. Simultaneously, food consumption aid for the poorest has skyrocketed in the United States. Should we not conduct an overall assessment, covering all countries and all budgets, before making decisions?

History Has Taught Us to Resolve Certain Problems

The recent accentuation of price volatility has revealed its dangers for social cohesion as well as for modernized farms and agricultural product processors.

Yet, since the 1929 Crash, we have learned that there are ways to counter these harmful price changes and that doing so does not involve suppressing governments' means of action. It is necessary to have, first, a precise vision of the goal to attain before defining the means to attain this goal.

The world is therefore not done with its food security. It has been a concern for centuries, and we have known for as long that it is a tricky and complicated subject. Liberal solutions can be useful in some cases by giving economic actors greater accountability. But this supposes that one does not imagine that "letting things happen" is enough. For agricultural product markets to be efficient, there needs to be a political organization that does not allow just anything to be done. The recent crisis has shown us that the equilibriums are fragile and when they are upset, the poorest are always the ones who suffer first.

7. The Challenges of a Regional Approach Price Instability Management: The Case of West Africa

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Summary

With the exception of the EU's Common Agricultural Policy (CAP), agricultural market regulation and price instability management are usually envisaged in the national or international framework. However, at a time when regional integration processes are tending to become stronger and are seen as favored frameworks for development, the question of the regional scale to conduct such policies has arisen. This is notably the case for the Economic Community of West African States (ECOWAS) that is envisaging providing itself with regional agricultural market regulation instruments and instability management instruments for the most vulnerable.

This paper aims to provide food for thought on the interest and limits of the regional scale to conceive this type of policy. After a rapid theoretical overview of the issue, the paper presents the primary challenges through the situation in West Africa.

Regional Integration as a Factor to Reduce Price Instability

The majority of trade worldwide takes place between countries in the same region. In West Africa, however, even though the institutional integration process is fairly advanced, intra-regional flows remain limited (around 12%).

Beyond the static effects of trade flow creation and deviation, regional integration can help lower price volatility by attenuating:

- exogenous instability thanks to the expansion of the market: less market segmentation, more effective resource allocation, facilitated investments;
- imported instability through the establishment of an appropriate common external tariff (CET); and
- endogenous instability, thanks to more predictable policies via the harmonization of national policies or even the elaboration of common policies, the attenuation of lobbies' influence, better spatio-temporal decisions by operators, strengthening of the tradable nature of agricultural products ("commoditization"), and lower transaction costs.

The Relevance of the Regional Level to Manage Price Instability in West Africa

a) The Regional Dimension of Price Instability in West Africa

The recent food crises in West Africa revealed:

- their regional dimension;
- the growing interdependency of economies in the region and the legitimacy of managing instability at the level of production basins and consumption basins; and
- the diversity of instruments that can be mobilized for food security in conjunction with the diversity of causes of instability.

b) The Regional Integration Process in West Africa

The choice of the regional scale to manage agricultural and food price instability is also justified by the fact that regional integration is tending to speed up: WAEMU customs union, adoption of a Trade Liberalization Scheme (TLS) by ECOWAS (even if the TLS is still far from reality in the field), ECOWAS common external tariff (CET) in the process of being finalized. In this way, the theoretical advantages of regional integration when it comes to lowering price instability could potentially come into play in West Africa. In addition, ECOWAS intends to intervene directly to regulate agricultural markets and limit the effects of price instability on the most vulnerable.

c) Regional Intervention: What Types of Instruments and Prerogatives?

One must distinguish between:

- price stabilization instruments; and
- instruments to correct the effects of this instability on incomes.

The regional approach must also take into account the respective fields of intervention for states and the region. There can be a simple coordination among states or true integration (common policies).

Various levels of delegating sovereignty can be envisaged: concurrent or shared responsibilities between the national and regional level; exclusive community responsibilities. The distribution of responsibilities relies on two principles:

- The subsidiarity principle: with the exception of those areas under its exclusive responsibility, the region takes action only when its action is more effective than action undertaken at the national, sub-regional or local level.
- The proportionality principle: the region's action must be limited to what is necessary to attain the objectives in the treaties.

Public Market Regulation Instruments

a) Border Instruments in the Framework of a Customs Union

Forming a customs union is supposed to make it possible to regulate imports at the borders of the union and encourage intra-regional trade within the free trade zone. For this to happen, it is however necessary that the CET offer sufficient protection and incentive, and that the free trade zone be real. WAEMU's CET is sharply contested for offering insufficient protection and not being sufficiently coherent. The current effort to

define ECOWAS's CET is an opportunity to correct this by introducing a 5th tariff band at 35%. Due to the diversity of national situations, it has been difficult to reach an agreement, however.

The West African experience also illustrates the methodological difficulties involved in reaching a political consensus on the level of protection desired with, on one side, a statistical approach of aggregating tariff preferences and, on the other, an approach based on policy negotiation.

ECOWAS is envisaging other border instruments to mitigate instability imported from international markets: seasonal quotas, specific tariffs (rather than *ad valorem* tariffs), and a safeguard measure. However, the same difficulties as those involved in setting the CET are being encountered because of the heterogeneity of countries in the region.

What is more, the countries in the region are not equally sensitive to imported price instability. Landlocked countries and countries within the franc zone are less exposed to price instability than coastal countries and countries outside the franc zone.

b) Regional Networking of Public Stocks

A regional approach to public stocks seems relevant in West Africa. Indeed, this approach makes it possible to:

- have a denser “grid” of public stocks on the regional scale, and therefore greater efficiency in de-stocking operations and the supply of deficit zones;
- spread the cost of storage among the countries in the region; and
- promote regional trade between surplus and shortfall zones.

There is already a network of the various public food security stock management structures, based on the principle of solidarity among the countries in the region. Each stock-holding country promises to liberate 5% of its stocks for the “regional stock.”

This initiative could be the basis for reflection on setting up a buffer stock system combining (national and regional) public stocks and private stocks. However, the institutional and political conditions have not yet been met, notably in regard to certifying the private operators, monitoring their practices, and applying sanctions in the case of speculative abuses. Public stock management should furthermore be transparent and depend only on the general interest. Involving the private sector and in particular socio-professional organizations could also help improve management.

Other technical and methodological issues must also be resolved: determining which markets and products to regulate, what the guaranteed purchase price should be for producers (including the question of possible different purchase prices in function of transport costs), and what the critical stock volume is.

Social Safety Nets: Is Regional Action Possible?

The Justification for Safety Nets as an Instrument to Accompany Price Stabilization

Safety nets (i.e. all actions destined to prevent populations from “falling” into a poverty trap) help manage price instability in two ways:

- They can *complete* measures that tend to act directly on prices.
- They make it possible to lower the effects of instability on incomes. They intervene where market mechanisms fail or are not longer enough (disasters, etc.).

Safety nets for consumers can have a compensatory role as systems aiming to smooth producers’ incomes with the aim of increasing food production. They can in this way be seen as a condition for the establishment of these systems inasmuch as they make them politically and socially possible.

Social safety nets are a social protection policy instrument. Their regional implementation remains tricky on the same footing as all social protection policies. For instance, even the European Union—the most advanced example of regional integration—has not harmonized its social protection policies.

Current State of Safety Net Policies and the Justification for Regional Action

Safety net policies involve two types of actions:

a) Preventing and Mitigating the Risk of Crisis

Implementing safety net instruments requires a particularly high degree of information. Indeed:

- Vulnerability to food insecurity, which determines the probability of crisis, depends on a multitude of factors that are often interdependent on each other.
- Safety nets are net transfers to individuals, and are particularly costly for governments.

On the sub-regional level, the state of food security information systems and crisis prevention is still heterogeneous. While the landlocked countries in the Sahel have relatively complete systems, the other countries usually have only very partial systems, essentially designed to prevent crises due to supply deficits.

Many information systems perform poorly when it comes to grasping market availability problems, and do not allow one to analyze the resources households have to withstand the various types of risk.

In high-potential zones, high and stable prices can be a form of incentive for net surplus producers. But, for the majority of producers in the sub-region—who are net cereal buyers—high prices increase the cost of cereal purchases.

For vulnerable populations that have low production capacities or insufficient monetary resources, the issue of food prices is therefore a key risk factor. It is therefore important to track market prices.

Even more than in preventing supply deficits, preventing crises due to market access problems gains in efficiency when it is done on the regional scale (tracking cross-border flows and the sub-regional transmission of prices).

Four strong elements can be inferred from the analysis of cereal market operations, notably millet and maize on the sub-regional level. They reveal the interest of regional information management:

- the existence of shocks that happen simultaneously in different countries;
- the distinction between markets “in advance” on which prices drop first with the arrival of new harvests;
- the existence of a few “lead” markets: prices on these markets determine the prices on a large number of other markets but are determined by only a small number of prices on other markets; and
- the impact of production and trade with Nigeria, Ghana and Côte d’Ivoire on the food economies of Sahelian countries.

This aspect of the safety net policy depends above all on governments. The region would intervene on three different levels:

- on the policy level by promoting a harmonized regional framework to analyze structural causes of vulnerability and instruments that could lower this vulnerability;
- on the institutional level by developing decision-making assistance capacities to prevent crises on the regional level and target interventions; and
- on the academic level by deepening knowledge of how the major cross-border zones in the food economy operate.

b) The Regional Approach and Management of Full-Blown Crises

Most countries have set up food crisis response capacities with a panel of instruments used based on the elements provided by information and early warning systems. The proper operation of the information – alert – consultation – decision – implementation chain is therefore crucial to the ability to respond in a satisfactory manner. Analysis of the 2008 crisis shows, however, that a long road remains to be traveled to attain this result (poor anticipation, national measures contrary to common policy principles). It reveals a deep-reaching problem of national coordination and crisis management: temporary establishment of safety nets by outside actors (WFP, FAO, NGOs) little integrated in public policies and not contributing to national capacity building (particularly since capacities are insufficient); numerous new actors (NGOs, etc.) are not included in the consultation and coordination systems.

The country-donor co-management system for National Security Stocks (NSSs) is an example of coordination among national institutions and external donors. However, while the rigor of the co-management system allows the NSSs to be mobilized in a timely manner, it can also limit the flexibility and reactivity necessary in the case of disasters.

To manage crises, the region cannot replace governments in the implementation of social safety net instruments. However, the ECOWAP program proposes measures on two levels:

- Support for “innovative” national initiatives: *national contingency plans*, initiatives destined to improve continuity between the warnings issued by national and regional information systems.
- The establishment of supplementary regional instruments: *regional contingency plan*; instruments destined to strengthen regional cooperation in regard to security stocks: technical cooperation and stock pooling.

Part D

Case studies analysis

Full texts of case studies are available at the following address:
<http://www.inter-reseaux.org/ressources-thematiques/article/etude-grema-sur-les-instruments-de>

1. Sub-Saharan Africa experiences

1.1 Cotton in Burkina Faso: the shift from government level price controls to a sector-led response to price volatility

Raphaël Beaujeu, IRAM

Summary

What has been done? In 2006, Burkina Faso implemented a new mechanism to stabilize producer prices in the cotton sector. It is innovative in two respects. Firstly, because the producer price is calculated from a “moving” average of international cotton prices. Until 2006, standard practice was to set a purchase price based on a hypothetical value of average long-term cotton prices. The result was to address price levels rather than price volatility. The advantage of stabilization measures based on a moving average, which is adjusted annually, is to strike a balance between the desire to reduce price volatility and the need make adjustments based on international prices. Moreover, a purchase price determined by mathematical rules limits opportunities for lobbying. The second innovative characteristic of this mechanism is the creation of a risk mitigation fund, the *fonds de lissage*, managed by local players in the cotton sector. Based on a matching contribution and withdrawal system, the fund is designed to manage risks associated with short-term, highly volatile cotton prices without government intervention. Depending on whether the selling price of cotton is lower or higher than forecasts made earlier in the year, cotton companies contribute or draw from the fund to ensure price stability and their financial balance. To ensure transparency, the fund’s management has been outsourced (by tender) to a local bank.

How has it been implemented? The evolution of price stabilization measures has gone through three distinct phases in Burkina Faso, which differ in terms of the level of coordination of local stakeholders and degree of government intervention. Prior to 1999, all activities of the cotton sector were administered by a single, state-run company, SOFITEX, which had a legal monopoly over purchasing, trituration, marketing and input supply. In 1999, a Memorandum of Understanding was signed, providing for a five year price-fixing mechanism based on negotiation within the cotton sector trade association. In 2005, the sector went through a crisis triggered by a combination of factors, including the sharp drop in international cotton prices, which the price-fixing mechanism was unable to adapt to. In 2006, the new mechanism was implemented. The evolution of price stabilization policy in Burkina Faso reflects the gradual withdrawal of government involvement, combined with the reinforcement of the sector’s trade association and a context of low international prices, all which have facilitated reform.

What were the effects? Effective smoothing of producer prices: during the implementation period of the new mechanism, the coefficient of variation of the

Cotlook A Index was 5% compared to 4% for real prices to producers (after rebate). Moreover, the coefficient of variation of producer prices was also lower than under the old system (8%). The *fonds de lissage* has been divided by 6 in five years. Had cotton prices not improved in 2009/2010, the fund would have dried up. As regards the price trend, there is little capacity to predict the direction and magnitude of changes. Production levels have not improved despite the stabilization of producer prices.

Table 15 : Risk mitigation fund

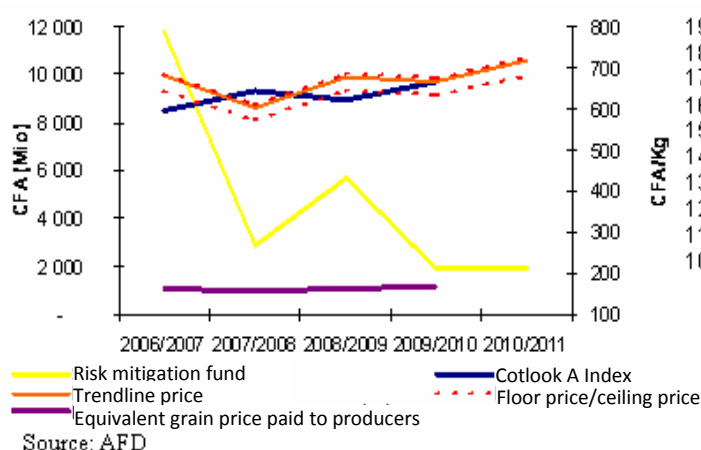


Table 16 : Real producer prices (FCFA/kg)

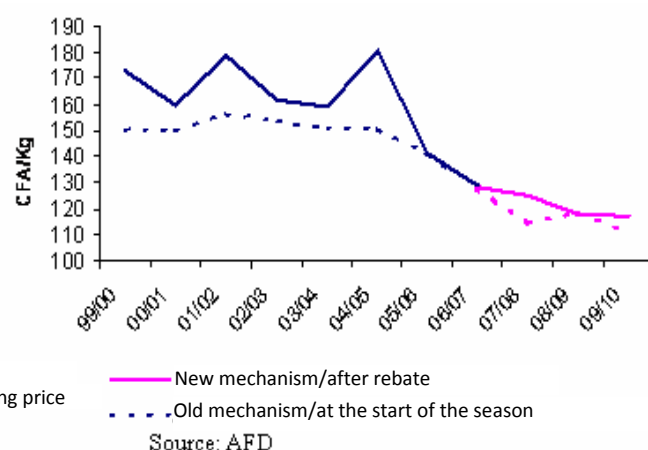
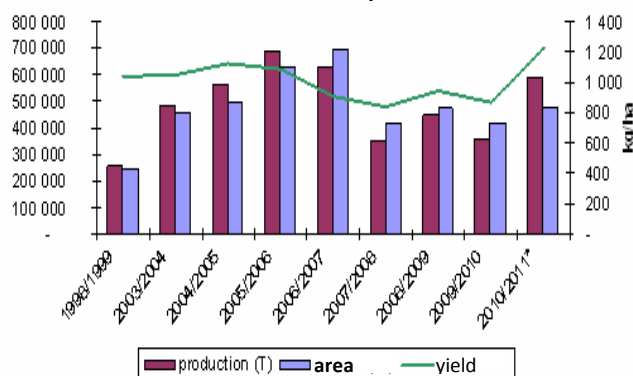


Table 17 : Cotton seed production 1999-2010



What recommendations could be derived? Various factors explain the stagnation of production, despite the relative stabilization of prices. (i) The “risk price” is only one factor of income instability. In particular, producers’ high debt levels increase production risk, partially nullifying the expected effect of reducing price uncertainty; (ii) Stabilization mechanisms cannot mitigate “trends”. A number of trends have diminished the margins of farmers, including lower international prices and the rising cost of inputs. (iii) The stabilization policy does not take a systems approach to farming. The drop in producer prices has led farmers to move into food crops, despite even greater price volatility in these markets.

1.2 Market regulation through a seasonal ban on potato imports: the case of Guinea

Arlene Alpha (GRET), Cécile Broutin (GRET), Kourahoye Diallo (FPFD)

Summary

What has been done?

From 1992 to 1998, the Guinean government implemented a seasonal ban on potato imports. For seven years, imports were banned during the period when local potatoes were sold on the market, from February 1 to June 30. The measure was introduced under pressure from Guinean potato producers, organized under a federation of producers in the country's main potato production region, the Federation of Fouta Djallon peasants. The seasonal ban was accompanied by significant production support (including distribution of certified seeds, fertilizers, extension services, management consulting, irrigation schemes) issued by the Federation itself to its members, thanks to the technical and financial support of several partners. These efforts helped overcome the Guinean government's shortcomings in the matter.

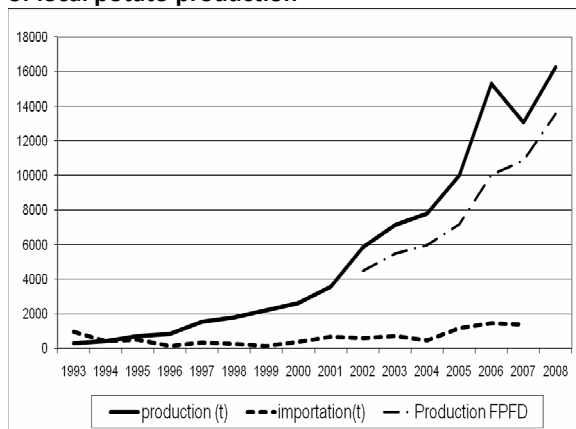
How has it been implemented?

The role of the Federation was instrumental in setting up and, eventually, lifting the seasonal ban, once the Federation had sufficient production capacity to supply the Conakry market. The Federation both lobbied the government to accept the ban (despite the constraints of the structural adjustments that were underway), and led negotiations with local retailers and importers. The Federation set up a contractual relationship with importing traders and supported the emergence of local traders (mostly women) to market local potato production.

What were the effects?

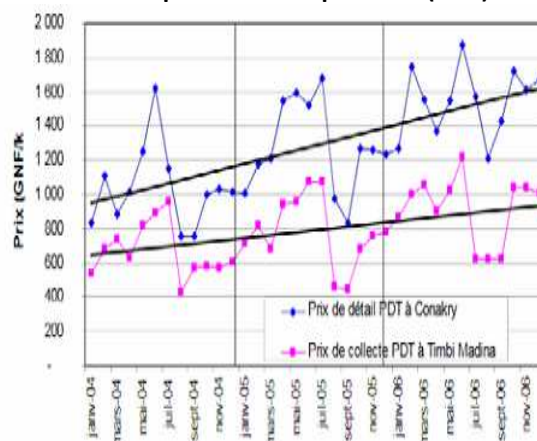
The combination of seasonal import bans on potatoes and the support measures to producers has had spectacular results on production and price stabilization. Local potato production has gone from 150 tons before 1990 to about 16,000 tons today. Demand on Guinean markets is largely met, and the Federation is in the process of exporting its surplus potatoes. Markets in neighboring countries present considerable potential (Senegal imported approximately 50,000 tons of potatoes from the European Union, for example). Leveraging this potential may help to stabilize prices in Guinea and strengthen the regional integration process, without necessarily exporting instability. When the Federation set out to boost potato production, one of its priorities was to strike a balance between attractive producer prices—negotiated by the Federation with traders—and reasonable consumer prices. Indeed, replacing imported potatoes with local production called for price competitiveness, not just quality. Retail potato prices have been contained so far and fluctuations smoothed thanks to several mechanisms: increased supply, lower production costs, cost control of margins related to marketing and storage.

Table 18 : Trends in harvesting costs and retail prices of local potato production



Source: FAO DYNAFIV/GRET, Impact des mesures tarifaires sur l'agriculture et l'agroalimentaires, 2005; FPDF, Marketing Report, 2006, 2007, 2008

Table 19 : Real prices of local potatoes (GNF)



Source: Pierre Bal, DYNAFIV, exploitation données SIPAG

What recommendations could be derived?

Several factors were determinant in the Guinean experience: the combination of a border measure with substantial production support; negotiations that involved producers, traders and the government; the capacity of the Federation to lobby the government, support its members, link to traders, track market prices; the existence of an export potential at the sub-regional level.

1.3 Maize marketing and trade policies in Kenya

Sophie Barthelon, ENGREF and Elodie Maître d'Hôtel, CIRAD

Summary

What has been done? Kenya has a long tradition of government intervention on maize markets, even during the so-called liberalization period. Recent interventions include:

- Reinforcement of maize marketing policies since 2000 (buffer stock, regulation of producer prices);
- Control of trade through non tariff measures and tariffs that tend to fluctuate less.

How has it been implemented? The government has implemented a wide scope of policies (thanks to higher public expenditures allocated to maize market regulation since 2000), but has not managed to enforce compliance with these policies. For example, the steps taken by the government related to imports ultimately exacerbated the maize crisis in 2008.

What were the effects? Prices seem to have stabilized in the wake of the government's renewed intervention in maize markets, particularly the tighter controls over marketing policies. Overall, producers have experienced higher production growth rates during interventionist periods. However, as our findings below show, producer prices have fluctuated more in the most recent period. (This is inconsistent with Jayne's findings that the National Cereals and Produce Board has a smoothing effect on price instability, but it is possible that our findings of increased instability are related to the 2008 crisis.)

Coefficient of variation	1994-2004	2005-2008
Producer prices (yearly data, FAOSTAT)	0.23	0.37

The effects of intervention on consumers has been a trend towards lower prices (perhaps due to a structural change in 2007?) and less volatility.

Coefficient of variation	1994-2004	2005-2008
Wholesale real price (monthly data)	0,22	0,19

What recommendations could be derived? There is still room to regulate markets more actively, through buffer stocks and import controls, for instance. Periods of heavy intervention on markets seem to correspond to greater stability (although better weather conditions during these periods could be the influencing factor, as well). The government should be encouraged to define and implement credible policies based on a transparent consultative process that involves the key stakeholders.

1.4 Rice stabilization policies in Madagascar

Hélène David-Benz (CIRAD), Johanna Rakotosoa (consultant), Patrick Rasolofo (Réseau des Observatoires Ruraux)

Summary

What has been done? Government intervention in marketing and the major production areas has been increasing since independence in 1960, through the early 1970s. From 1973 to 1977, state-run companies controlled all downstream marketing activities. From 1980 to 1990, the government gradually withdrew. Structural adjustment policies were accompanied by the rehabilitation of irrigation systems, which came under the management of water user associations. During the 2000s, policies aimed at increasing domestic supply through production support and regulation of urban supply through imports.

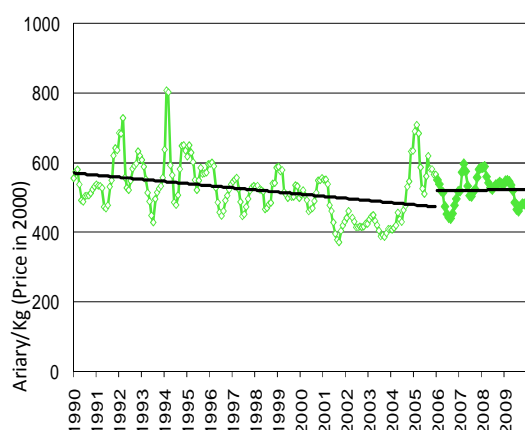
How has it been implemented? Until the late 70s, government intervention took the form of land development corporations in two of the main rice production areas. The government also intervened through parastatals, which had a monopoly over the purchase and distribution of rice, and set prices for both producers and consumers.

After liberalization, state intervention focused on setting import levies (with rates ranging from 30% to 0%) and ad hoc initiatives like facilitating imports during crises. Efforts to increase production included investment in irrigation infrastructure (rehabilitation), intensification incentives based on access to inputs (such as recent efforts to encourage off-season rice), and incentives to expand rainfed production through access to mechanization. Microcredit has also expanded significantly, to finance production and storage.

Starting in 2005, the government implemented two innovative instruments to improve the management of the sector: an observatory and a consultative mechanism to encourage dialogue between the government and industry players.

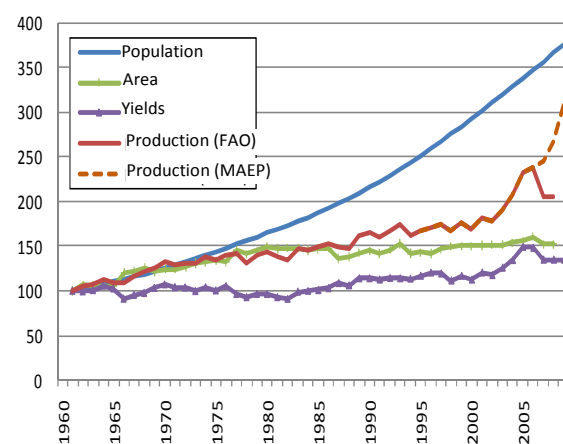
What were the effects? The centralizing policies of the 70s completely destroyed marketing channels and producers' interest in the market. Availability per capita fell (from 200 kg to 125 kg/per capita between 1970 and 2000) and imports increased. Since 2002, production levels have shown a marked increase, and starting in 2005, fluctuations in consumer prices stabilized, despite a troubled national and international context.

Table 20 : Local real rice prices, retail (Tanananarive)



(Source: Author's calculations based on datasets from INSTAT)

Table 21 : Population growth and agricultural production



(Sources: FAO and MAEP)

What recommendations could be derived? The period of total government control was catastrophic the recover long. The recent positive developments in the rice sector are partly the fruit of production support and infrastructure development efforts (irrigation and transportation), and partly due to a new form of governance that relies on well-informed decision-makers and public-private coordination. However, multi-stakeholder dialogue has not eliminated the unequal balance of power: measures (including price stabilization) are taken more in the interest of urban consumers than the protection of producers.

1.5 The effectiveness of food price stabilization policies: the experience of Mali (2004 - 2009)

Franck Galtier, CIRAD - UMR MOISA

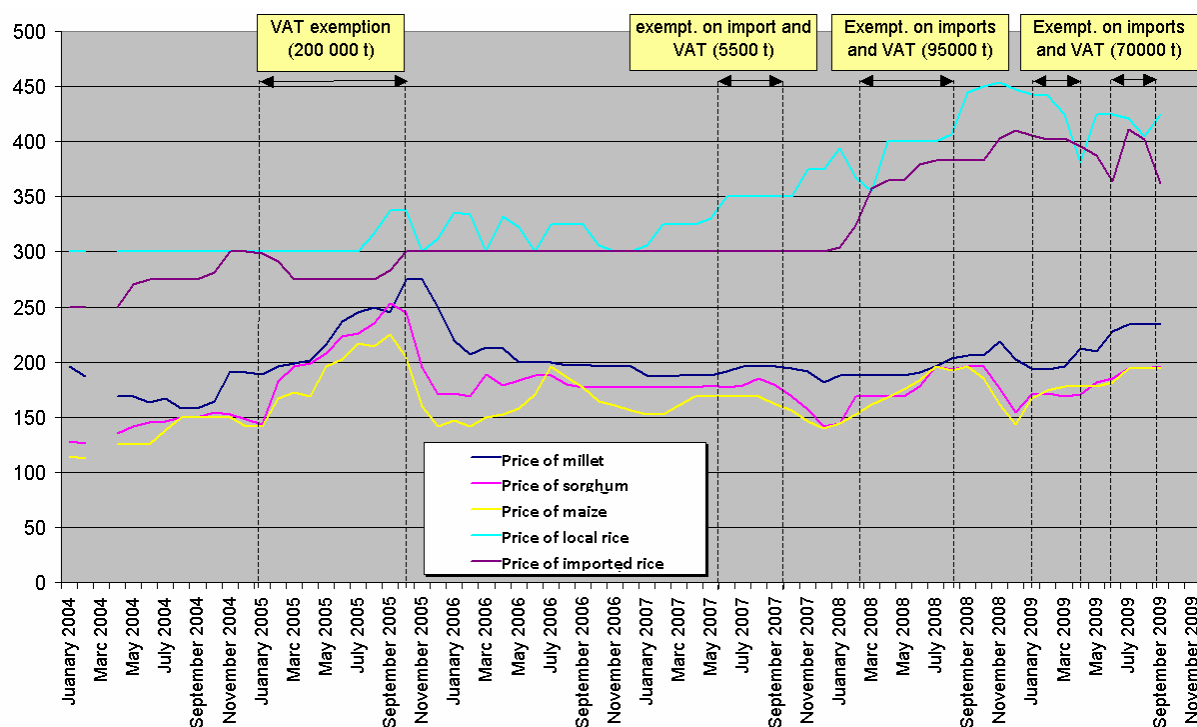
Summary

What has been done? Since 2004, Mali has used four instruments to periodically stabilize domestic cereal prices (millet, sorghum, maize and rice): (i) a ban on exports (2007 and 2008), (ii) a recovery plan to boost production through input subsidies (for rice in 2008; for rice, maize and wheat in 2009), (iii) public stocks (especially since 2005, when two new types of stocks were set up (the State Intervention Stock and cereal banks), and (iv) tax exemptions on cereal imports (for rice and maize in 2005, 2007, 2008 and 2009 and for maize only in 2005). The outreach of these government interventions as well as their modalities have varied considerably, depending on the instrument, the year and products targeted.

How has it been implemented? The *decision-making process* is complex. The different instruments are often managed by different agencies (e.g., the Ministry of Commerce for export bans and tax exemptions on imports; the Ministry of Agriculture for recovery plans; the cereal bank management committee for decentralized stocks, located in 703 of the country's municipalities). Decisions are made by the President and the office of the Prime Minister, with support from the Food Security Commission. The *effective implementation of policies* has sometimes proved difficult. Export bans have been circumvented. Importers have not always benefited from tax exemptions. The subsidized inputs for producers often arrive late, and in insufficient quantities (particularly for seeds). Finally, purchases for certain public stocks at times came too late (especially for the State Intervention Stock, which lacks working capital to make timely purchases).

What were the effects? The *ban on exports* has not managed to discourage cereal exports. Not enough, at least, to affect prices in Mali. The bans have not had the expected moderating effect on consumer prices, but nor have they penalized producers—or only very marginally. *Policies to boost production* have had a moderate impact on production levels (+ 20% below the stated goal of a 50% increase) and prices (which declined slightly and stabilized at a high level). *Public stocks* have had little effect on prices. Perhaps they have helped absorb fluctuations due to seasonality, but they have failed to contain increases in times of crisis. This is probably due to the small size these operations: only 28,000 tons were released during the crisis of 2005 (15,000 tons of dry cereals + 13,000 tons of rice) and 53,000 tons during the 2008 (32,000 tons of dry cereals + 21 000 tons of rice). The *tax exemptions on imports* has had a moderating effect on prices of imported rice, but have also driven down prices of locally produced cereals (including dry cereals). This is what happened in the Kayes region in 2005 and in various other areas in 2009. This phenomenon holds true for both consumer prices and producer prices.

Table 22 : Effects on retail prices in Kayes of VAT exemption and tax exemption on imports



Source : Galtier F., Diakité L. et Diarra S. (2011)

What recommendations could be derived? The *instruments* that have been found to be potentially effective are tax exemptions on imports, recovery plans to boost production, and public stocks (provided they grow in size). The *form of governance* and decision-making process is at least as important as the choice of instruments. For example, for public stocks to be effective, their administrators need working capital at their disposal. Similarly, for tax exemption measures to be effective, importers must actually benefit from them. This implies defining the terms of these exemptions with the importers, and ensuring compliance through control measures.

1.6 The Malawian experience in maize price stabilization

Arlène Alpha (GRET), Françoise Gérard (CIRAD)

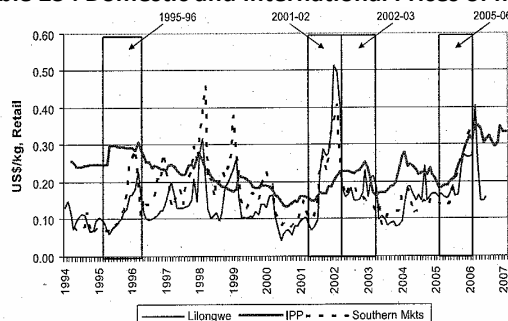
Summary

What has been done? Malawi has a long tradition of intervention in maize markets that dates back to the colonial period, was pursued after Independence and continued through the mid-1980's: pan-territorial and pan-seasonal prices, subsidization of fertilizers. After a liberalization period from 1987 to 2000, during which the Agricultural Development Marketing Corporation (ADMARC) was privatized, maize fertilizer subsidies and licensing requirements for traders were removed and the government once again started to intervene through a vast program of input subsidies and the reinforcement of ADMARC.

How has it been implemented? The Malawian government, which controls all formal maize imports, greatly influences maize trade policy. The main criticism of this policy concerns the unpredictable and discretionary nature of government decisions, such as sudden imposition of trade restrictions, import bans and changes in tariff rates. Ad-hoc governmental operations tend to increase risk and discourage private trade initiatives. They also often exacerbate food crises, driving the cost of food staples well beyond import parity price.

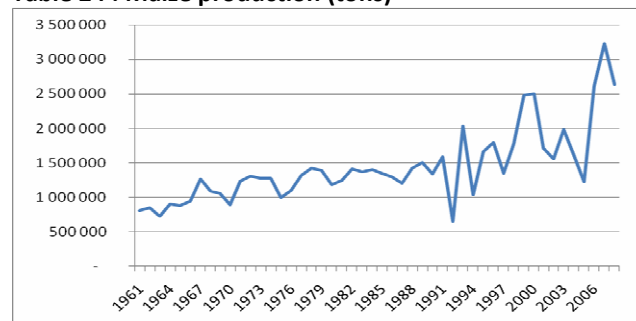
What are the effects? During the 1983-1993 period, the implementation of a policy package combining ADMARC's intervention on the grain market; seed, fertilizer and credit delivery; extension services; and rural infrastructure development resulted in positive effects on yield and production growth. More recently, growth in maize production has been striking. It is still too early to understand what is driving this trend. Favorable climatic factors may be at play. The free seed and fertilizer programs of 1998 and the Agricultural Input Subsidy Program in place since 2005, combined with stronger ADMARC's initiatives to guarantee producer prices and price ceilings at retail, may also be behind the increase of maize production. Domestic maize prices appeared to be more volatile than international maize prices during the 1994-2007 period. However, as soon as floor (and ceiling) prices were known, and other producer supports such as those on seed, fertilizer and credit were provided, producers took favorable decisions on farm investment.

Table 23 : Domestic and International Prices of maize



Source: Tschirley and Jayne (2009)

Table 24 : Maize production (tons)



Source: FAOSTAT

What recommendations could be derived? Maize price stabilization is only one component of Malawi's agricultural policy. Maize production growth is the result of a technical package that includes high-yielding varieties, fertilizer and technical advice. However, the unpredictable and discretionary nature of the price stabilization policy has weakened the policy's legitimacy. To be legitimate, the policy must be predictable and include a consultative process with key stakeholders. The choice of pan-territorial producer prices in such a long country leads to some difficulties and inefficiencies in remote areas. Some actors in Malawi are currently experimenting with market-based instruments, but it is too early to assess their impact.

1.7 Maize marketing and trade policies in Zambia

Elodie Maître d'Hôtel, CIRAD

Summary

What has been done? Zambia has a long tradition of intervention on maize markets, even during the so-called liberalization period. Intervention has intensified since 2005, including (i) measures to tighten control on trade through import licenses, import tariffs and non tariff measures; and (ii) policies influencing maize marketing, such as input subsidies and security and buffer stock schemes.

How has it been implemented? Zambia has implemented a wide scope of policies (thanks to higher public expenditures allocated to maize market regulation), but has not managed to enforce compliance with these policies. For instance, some discretionary policies have tended to discourage private actors' involvement in maize markets (2001/2002 and 2002/2003 crisis).

Despite the strong political influence of the Zambian National Farmers Union (ZNFU), small holders' interests are not really represented due to the lack of an official consultative mechanism.

What were the effects? Effects on producers include higher production growth rates during interventionist periods (no data is available on changes to producer prices).

Effects on consumers include a trend towards lower prices and less volatility.

Coefficient of variation	1994-2004	2005-2009
Wholesale real prices (monthly data)	0,35	0,24

Maize prices seem to have stabilized in the wake of the government's renewed intervention in maize markets, particularly the tighter controls over trade and marketing policies, but it is unclear whether this stabilization is due to increased public intervention or other factors (such as favorable climatic conditions). Authors have emphasized ineffectiveness of public intervention and widespread mistrust between the public and private sector, which tend to diminish policies' capacity to decrease food price volatility.

What recommendations could be derived? There is still room to regulate food markets more actively, such as through buffer stock and import controls. Periods of heavy market intervention seem to correspond to greater stability (although improved weather conditions could be the influencing factor, as well). The government should be encouraged to define and implement credible policies based on a transparent consultative process that involves the key stakeholders.

2. Asian experiences

2.1 Biting off more than it can chew? Agricultural price stabilization policies in India

Frédéric Landy, Professor of Geography, GECKO, Université de Paris Ouest Nanterre-La Défense, Associate researcher at the Centre d'Etudes de l'Inde et de l'Asie du Sud (CNRS EHESS)

Summary

What has been done?

Stabilization policies can be broken down into three periods. After Independence in 1947, the government heavily intervened in agricultural prices. Before the Green Revolution, this involved forced levies on farmers and traders, an environment that shied away from private speculation, and subsidized food prices in large cities. Once the Green Revolution got underway (1965), policies focused on incentives to guarantee prices and redistribute surpluses to the entire population. Since 1991, there has been gradual liberalization.

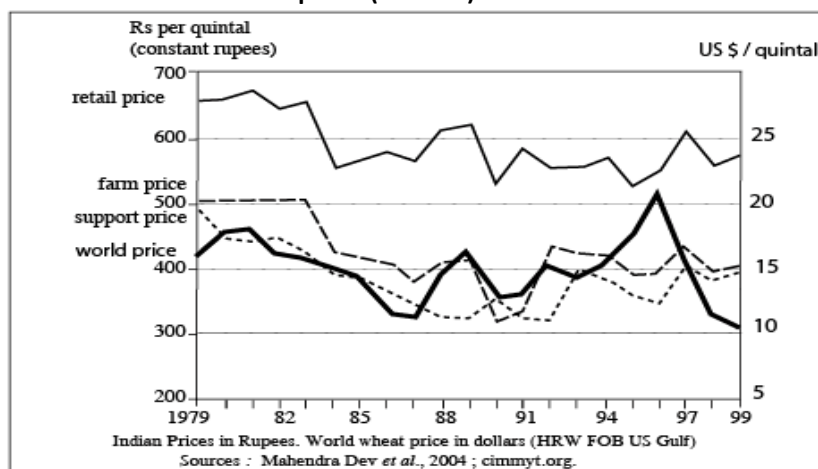
How has it been implemented?

Since 1965, the Food Corporation of India, backed by state governments, has purchased wheat and rice at reserve prices (the same system exists for sugar), thereby amassing stocks that are distributed and sold at subsidized prices through a countrywide distribution network. Purchases by firms are still controlled, as are import-export transactions to a certain extent. Input subsidies (fertilizer, water, electricity) play a major role but ultimately, Indian agriculture is more taxed than it is subsidized.

What were the effects?

The agricultural growth in areas influenced by the Green Revolution has started to slow, the public distribution system is riddled with corruption, and food security stocks are poorly managed. The latter results in costly imports, less costly subsidized exports, and resale on the domestic market. But, India has acquired grain self-sufficiency and food sovereignty. Agricultural and food prices are smoothed compared to world prices, which (for the most part) allows the country to avoid "hunger riots". "The coefficient of variation for rice and wheat prices in India held steady around 4% to 7% between 1980 and 2000, compared to 15% to 20% for world prices" (*High Level Committee, 2000, § 1.8*).

Table 25: Trends in wheat prices (1979-99): India and world



What recommendations could be derived?

Protectionism and government price policy have brought agricultural expansion and relative consumer satisfaction. However, India lacks flexibility in its policy (long-term management of stocks devoid of political pressure, food vouchers in cities, measures to avoid competition with distribution channels used by local producers).

2.2 The Indonesian experience with rice price stabilization

F. Gérard, CIRAD

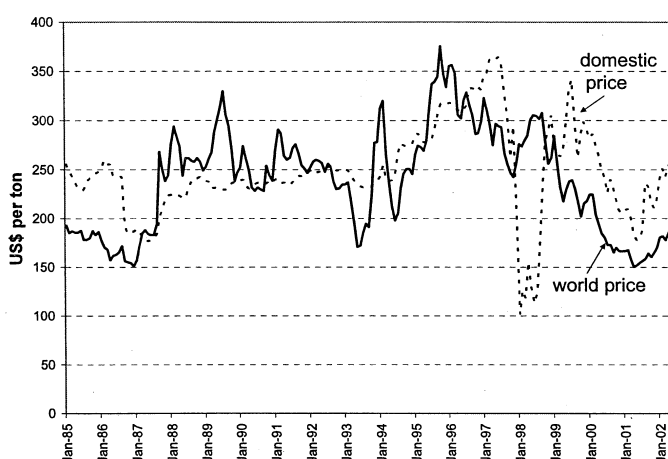
Summary

What has been done? Indonesia pursued rice price stabilization through two instruments used simultaneously: (i) intervention in marketing through public storehouses managed at a local level (ii) monopoly control over international trade. Price stabilization protects both consumers and producers by maintaining rice prices within a predetermined band and by widely disseminating floor and ceiling prices. Stable and low rice prices were a major objective of the government following the period of economic and political instability that came to an end in the mid-sixties. The rice price policy can be split into several periods, corresponding to changes in the country's context. These changes in turn have influenced the policy's implementing agency's objectives and constraints.

How has it been implemented? Rice price stabilization was implemented by a special agency created in 1968 (BULOG). BULOG managed a nationwide network of local agencies and district-level warehouses (DOLOG), which enabled it to store substantial quantities of rice. DOLOG warehouses bought rice to bring prices in rural markets up to the floor price. BULOG procured rice paddy from farmers' cooperatives as well as from private traders. Farmers were encouraged to establish village cooperatives. Major efforts were made to build capacity of BULOG's management and staff from the beginning. Extensive analytical studies were carried out on key factors such as the size of margins between floor and ceiling prices, the size of buffer stocks, and the price of fertilizer relative to floor and world prices. A monopoly control over international trade was established, which allowed the government to import when domestic production was insufficient and to export when there was a surplus and stocks levels were already high.

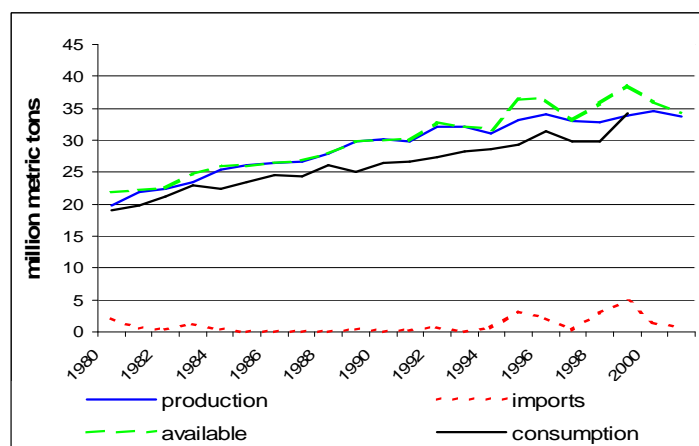
What were the effects? The supply response was dramatic: rice production increased by 10.5 millions tons over the 1978-1985 period. Fertilizer use increased by 500% between 1970 and 1985, while yields increased from 2.5 T/ha in 1965 to 4.4 T/ha in 1990. A huge improvement in food security followed.

Figure 2 : World rice prices and domestic rice prices 1985 to 2002



Source: reprint from Timmer 2004 p. 7¹

Figure 1 : Evolution of selected indicators for rice in Indonesia (1980-2001)



Source : Central Bureau of Statistics

What recommendations could be derived? The Indonesian experience shows that government intervention can successfully adapt to a changing context and contribute to quick economic growth, but that it is difficult to implement. It is important to note that the rice price stabilization policy was only one component of the Indonesian approach to modernizing its rice economy. Public investment, not only in infrastructure such as roads and irrigation facilities, but also in human capital, through extension services and education, played an important role in the country's success. One important characteristic of government interventions is that they focused on avoiding markets failures and supporting private economic initiatives rather than substituting public initiatives for private initiatives. The whole commodity chain was not in the hands of parastatal companies.

The agricultural policy was part of a broader policy ensuring (i) macro-economic stability, (ii) making markets working more efficiently, (iii) ensuring political stability, and (iv) creating enabling environment for private investment.

Some technical lessons on price stabilization can also be drawn from the Indonesian experience:

- The target price should be aligned with international prices;
- The policy is far less costly when the country relies on imports than when it has to manage a surplus.

Key factors including the size of the margins between floor and ceiling prices, the size of buffer stocks, and the price of inputs relative to floor and world prices need to be constantly updated.

2.3 Rice price stabilization policies in Thailand

Yi Chen (SupAgro Montpellier, UMR MOISA)

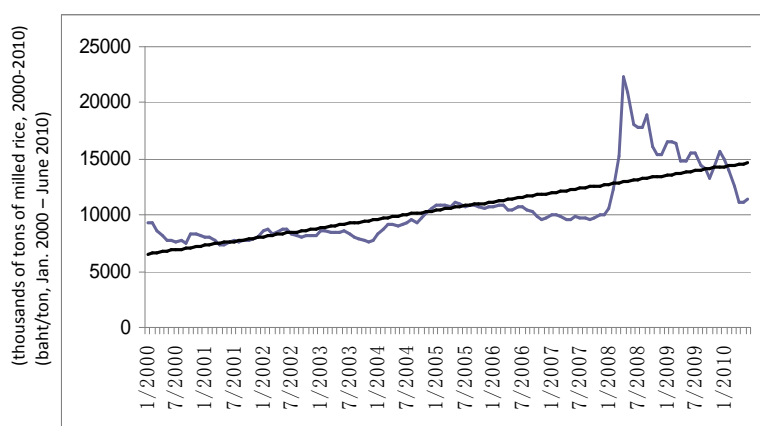
Summary

What has been done? 1) From 1950 to 1985, the government established export taxes (pro-consumer policies); 2) From the mid-1980s to 1997, it removed export taxes and implemented modest measures to support producer prices; 3) From 2001 to 2009, it developed buffer stock and support price schemes (pro-producer policies).

How has it been implemented? From late 1950s to the mid-1980s, Thailand used a combination of four instruments: a rice premium, ad valorem export duty, rice reserve requirement and quantitative restrictions on exports. From 2001 to 2009, the government purchased rice at above market prices under the Paddy Pledging Program; the pledged paddy was then sold through bids or “Government to Government contracts”.

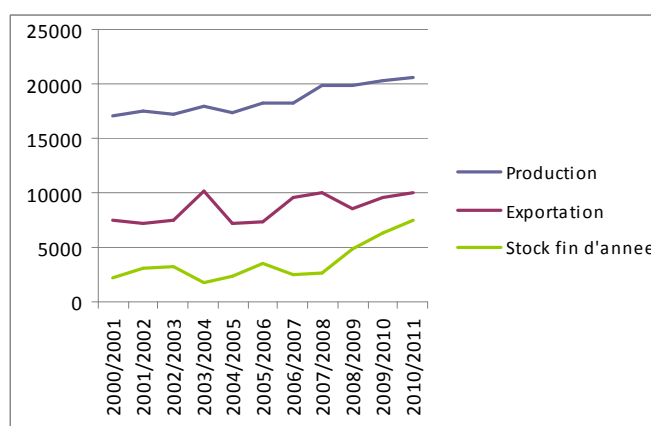
What were the effects? From late 1950s to the mid-1980s, export taxes on rice constituted an important source of government revenue. Domestic prices were kept below the export prices and stabilized during the spikes (1967 and 1973). From 2001 to 2009, production levels grew thanks to high intervention prices. Domestic prices started moving upwards, levels of buffer stock rose, and the government spent a considerable part of the budget on the policy. There were also some undesirable effects on exports (lower competitiveness and availability of rice).

Figure 4 : Wholesale real price of rice 5% broken



Source: Bank Of Thailand, Website: <http://www.bot.or.th/>

Figure 3 : Trends in production, exportation and end-of-year stocks



Source: USDA-FAS

What recommendations could be derived? Up until the early 1980s, the comparative advantage of rice production in Thailand could be explained by the country's wealth of resources, optimized by government policies aimed at ensuring relatively equitable land tenure; investments in road, railway and irrigation infrastructure; and an active credit policy (Phélinas, 2010). Since 2001, the Thai government's policy to stabilize the income of rice producers has started to conflict with the sector's export orientation. Above-market intervention prices have led to significant production increases. The widespread outreach of intervention policies has appeared to cause difficulty for small actors on the market. Some undesirable effects may be related to inefficient management of buffer stocks and speculation on the part of market actors. Finally, there are questions as to whether intervention policies are equitable, as they do not benefit the poorest small-scale farmers.

3. South American experiences

3.1 Linking town and country: public policy as a tool to promote family farming, food security and market regulation

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Summary

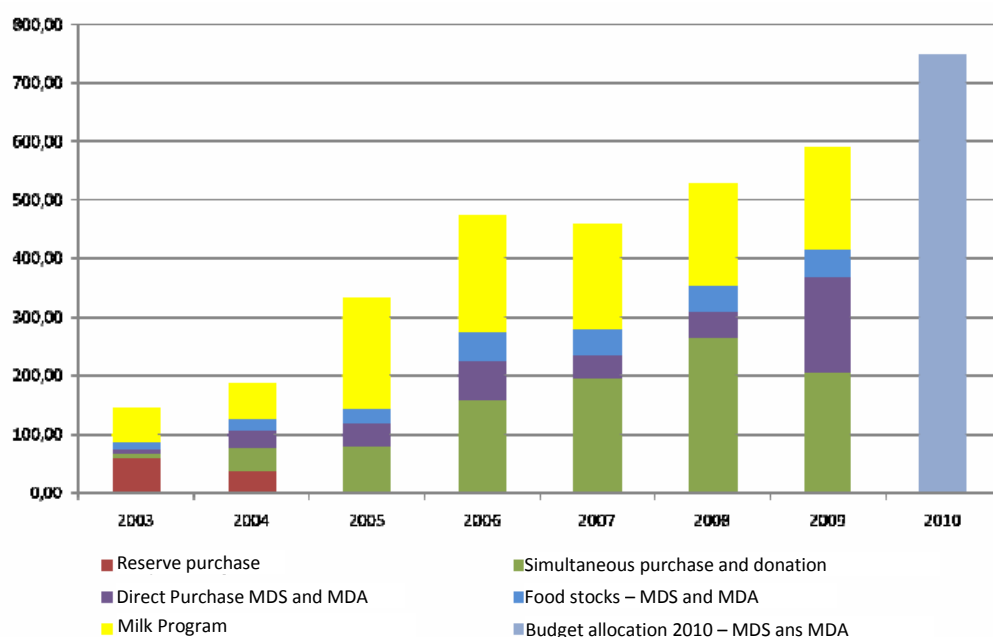
What has been done? Created in 2003, the Family Farming Food Acquisition Program (PAA) aims to support family farms and encourage them to market to vulnerable populations facing food insecurity. The PAA uses four instruments: (i) Direct purchase of foodstuffs from family farmers (CDAF), whereby the government purchases produce from farmers at subsidized or market prices to supply populations facing food insecurity. (ii) A guaranteed purchasing contract for family farmers (CGCAF). Farmers' groups stock part of their production in exchange for a promissory note (CPR) that provides individual farmers access to financial resources. (iii) Direct local purchase of family farm production (CDLAF), whereby farmers' groups signed an agreement with one or more entities that serve vulnerable populations (e.g., charities, hospitals, public schools) to provide foodstuffs. The agreement defines the quality, quantity, value and delivery of the foodstuffs. The agreements in turn facilitates farmers' access to credit, for an amount that corresponds to the negotiated value placed on deposit with the national supply company (CONAB). (iv) Incentive program for milk production and consumption (IPCL): Based on the principle of sectoral preference, this instrument allows vulnerable populations to purchase milk directly from producers.

How has it been implemented? Brazilian agricultural policy is two-pronged. The Ministry of Agriculture mainly addresses export-oriented agribusinesses, while the relatively recent Ministry of Agrarian Development supports family farming and addresses issues of food security. The four mechanisms of the PAA are implemented by CONAB, based on an agreement with the Ministry of Social Development and Fight Against Hunger (MDS), the Ministry of Agrarian Development, state and local governments. The mechanisms are managed locally by family farmers' associations and civil society organizations. To participate, farmers must meet the criteria of the National Program to Strengthen Family Agriculture (PRONAF). Finally, there are caps on the amount of production each farmer can market through the PAA, to avoid supply surplus and inequality among beneficiaries.

What were the effects? The program has increased incomes of family farmers and improved food security of vulnerable populations. Thanks to increased consumption of fresh local produce and decreased consumption of processed products, dietary habits have improved. In addition, the program has resulted in a number of positive

externalities: quality and hygiene standards that sometimes extend to all local production and improve the nutritional value of foodstuffs as well as the health of non-direct beneficiaries; stronger ties between the town and country; and women's empowerment through processing activities. The PAA has faced some challenges. Outreach is limited due to financial constraints (less than 5% of family farmers are involved) and bureaucratic delays are common, due to a management structure that involves three levels of government. Finally, the program is simply an initiative of the current government, and has not yet been institutionalized as a formal policy.

Figure 5 : Trends in the growth of the PAA per instrument



What recommendations could be derived? The Brazilian experience is an example for countries with similar characteristics, i.e., a family farming sector with great production potential and a large segment of vulnerable consumers. In this context, food policies that aim to increase incomes/market access for family farmers and improve food security of vulnerable populations through social policies, can serve to rationalize resources and lay the groundwork for efficiency gains in the long term. Furthermore, the existence of two Ministries with different objectives allows for interventionist measures in favor of vulnerable populations, despite the hegemonic liberal discourse of Brazilian agribusiness.

4. Developed countries experiences

4.1 Comparative study on regulation of agriculture in the United States, Canada and the European Union

Lucien Bourgeois, Economist; Sophie Vivienne, AgroParisTech, Department of Comparative Agriculture and Agricultural Development; Daniel-Mercier Gouin, Chair of Agricultural Policy Analysis, University of Laval, Quebec

Summary

What has been done? In the 1990s, the governments of these three countries set out to limit budget spending without affecting the incomes of farmers: a task easier said than done.

With the reform of the CAP in 1992, the European Union (EU) adopted a system of direct income aids, like those used by the United States (US). The two major powers came to an agreement on this basis, and imposed it on the world by including it in the “blue box” category, set up under the Marrakech Agreement. Initially, the EU measure involved compensatory aid to farmers, as a way to convince them to accept the price difference that might exist between the European domestic market and the global market. The aids were designed to be temporary. It was expected that European producers would gradually manage to offset the price difference by exporting larger volumes. But hopes for global market expansion proved overly optimistic. Markets for agricultural raw materials, and especially cereals, have barely increased since the early 1980s.

How has it been implemented? After a period of heavy market intervention, governments were seeking solutions that made producers more accountable. Public storage systems and the export subsidies used in some sectors in the United States and the European Union were phased out. So-called shared responsibility mechanisms and crop insurance schemes were set up. The problem was that these schemes could only operate at a high cost to their governments. Recently, however, governments have encouraged the processing of bio-fuels through heavy subsidies. The US has also sharply increased consumer subsidies on food for the poor.

What were the effects? The three countries studied have, over time, changed the instruments used to regulate their agricultural sectors, either as a response to internal pressure (often budgetary), or the international context (increased market competition and multilateral agreements on agriculture). In both the EU and the US, this first led to a decrease in the level of price support, replaced by an increase in the level of direct payments, with the objective of maintaining a guaranteed income to farmers. Gradually, direct payments have evolved and have been decoupled from production, to meet the constraints set by the Agreement on Agriculture of the Uruguay Round. This change is just about complete in the European Union, with the introduction of single payment

entitlements. It is still only partial in the United States, which has maintained countercyclical payments. In Canada, the picture is somewhat different. Price support policies, which target a few products (milk, poultry and eggs), continue intact to this day. Income support policies for other sectors of agricultural production, however, have also evolved towards decoupled payments.

What recommendations could be derived? At first glance, these regulatory instruments appear to have reduced economic distortions. But this statement must be qualified. If we look at the changes to levels of total support to agriculture in the three countries, it becomes clear that while all three have respected the commitments they made at the WTO on domestic support, they have not decreased overall support throughout the period.

In fact, for all three countries, total support granted to agriculture exceeds the level of commitments. Canada, the EU and the US have managed to respect their commitments, thanks to the "box game": to agree on priorities for reducing domestic support, types of aid were categorized in three boxes. The orange box was for aid that cause the most distortion and should be reduced first; the blue box included support measures considered less harmful and therefore still tolerable for a short period of time; the green box was for support deemed to cause little market distortion. The result has been a rise in green box aids everywhere.

The total support to agriculture remains as high as it was in 1995 in the European Union and even higher in Canada and the United States, before the sharp increase in agricultural commodity prices in 2007 and 2008. These results reflect a reality: the governments concerned consider the agricultural sector still needs support.

4.2 Corn markets in the United States

Lucien Bourgeois, Economist

Summary

What has been done? World corn production has exceeded that of wheat and rice. Production could reach 811 million tons in 2010-2011, which would be 2 million tonnes below the record high established in 2009-2010. This is exactly double 1980 production levels. Despite these perspectives, prices are soaring on the world market and exceeded \$7.40 a bushel in early March 2011, compared to \$3.70 a bushel in early March 2010, and \$3.25 in early July 2010. Prices have doubled in a year.

Unlike other cereals, corn production is highly concentrated in a small number of countries. The United States and China account for more than 60% of global harvests. With more than 40% of the total, the US is by far the largest player in the market. It is an interesting case study. Corn, which has become the most abundant food on the planet, depends essentially on the world's largest economy. But curiously, American supremacy in corn production has not yielded impressive results in terms of entering new foreign markets or improving the performance of the agro-food industries that rely on them. It is therefore relevant to see how agricultural policy has evolved in this country and its consequences on the world market.

How has it been implemented? Since the mid-1980s, the government has tried to reduce subsidies, hoping to develop demand in foreign markets. This new policy was fully formalized in the 1996 Farm Bill, entitled the "FAIR Act" to indicate that the US was ready to embrace competitive practices. Results were disappointing. Just two years later, prices collapsed and emergency measures were needed to once again support farmers' income. Unlike the EU, which has decoupled direct aid, the bulk of aid to US farmers is countercyclical, which takes into account market prices.

What were the effects? This strategy, aimed at developing export markets, has not been successful. US corn exports have not increased for 30 years and the overall balance of food products from the United States is in decline due to a relative inability to expand exports of processed products, which now make up most of the market.

Figure 7 : Corn prices in the US and France

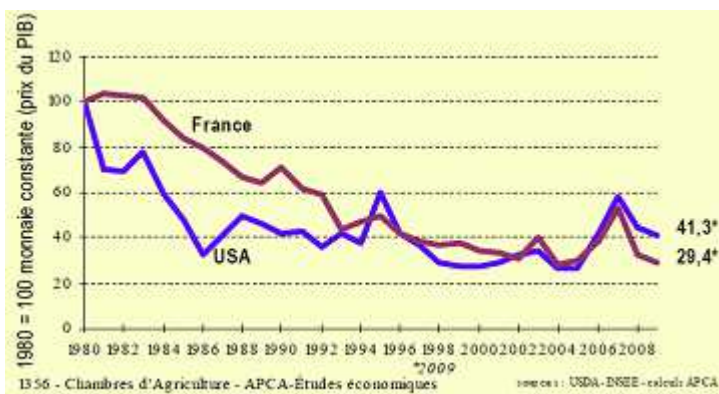
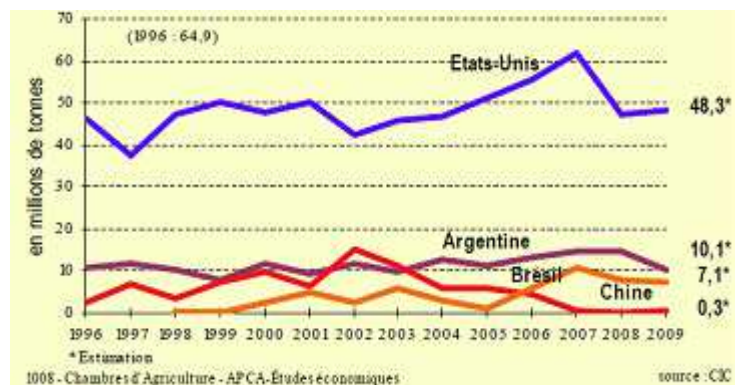


Figure 6 : Main corn exporters 2009



What recommendations could be derived? This new policy has another major drawback. It resulted in a long period of excessively low prices on the global market, which serves as a worldwide reference, despite representing just 10% of total production.

It took a sudden demand for corn from the domestic non-food market to turn things around. Starting in 2003, ethanol production began to absorb more than 10% of annual corn production. In 2007, this share grew to 20%, and exceeded 40% in early 2011. This new demand now accounts for almost three times the tonnage of US corn exports. It is causing a decline in stocks that worries importing countries. This is what explains the price spikes, even though harvest levels are record.

Due to a substitution effect, the increase has affected all types of grains. Furthermore, the absence of buffer stocks in both the US and the EU has encouraged speculation. Altogether, these factors have led to rising food prices in importing countries. What is ironic in this new scenario based on ethanol production is that market regulation is clearly easier when it relies on domestic demand rather than exports. Even when it comes to the world's largest economy.